

This document gives pertinent information concerning the issuance of the Virginia Pollutant Discharge Elimination System (VPDES) Permit listed below. This permit is being processed as a Major, Industrial permit. The discharges are comprised of stormwater runoff which has come in contact with industrial activities from various sources on U.S. Army Garrison - Fort Belvoir and industrial wastewaters (non-contact cooling water, vehicle wash water). This permit action consists of establishing monitoring and special conditions to maintain the Water Quality Standards (WQS) of 9VAC25-260-00 et seq., which were effective January 6, 2011.

1.	Facility Name and Mailing Address:	U.S. Army Garrison – Fort Belvoir 9430 Jackson Loop Fort Belvoir, VA 22060	SIC Code :	9711- National Security
	Facility Location:	U.S. Route 1 Fort Belvoir, VA 22060	County:	Fairfax
	Facility Contact Name:	William L. Sanders	Telephone Number:	(703) 806-3017
	Facility E-mail Address:	william.l.sanders34.civ@mail.mil		

2.	Permit No.:	VA0092771	Expiration Date of previous permit:	Not Applicable (NA)
	Other permits, including other VPDES permits, associated with this facility:	Please see Attachment 1 for a list of existing environmental permits.		
	E2/E3/E4 Status:	NA		

3.	Owner Name:	United States Department of the Army		
	Owner Contact/Title:	Colonel Angie K. Holbrook / Colonel, U.S. Army Commanding	Telephone Number:	(703) 805-2052
	Owner E-mail Address:	angelia.k.holbrook.mil@mail.mil		

4.	Application Complete Date:	April 9, 2014		
	Permit Drafted By:	Susan Mackert	Date Drafted:	July 7, 2015
	Draft Permit Reviewed By:	Alison Thompson	Date Reviewed:	July 13 – 14, 2015
	WPM Review By:	Bryant Thomas	Date Reviewed:	July 24, 2015
	Public Comment Period :	Start Date: TBD 2016	End Date:	TBD 2016

5. Receiving Waters Information: See Attachment 2 for Receiving Waters and Outfall Information

A component of the issuance process involves a review of outfall coordinates and receiving streams by DEQ planning staff. Based on this review, the outfall coordinates and several receiving streams noted in Attachment 2 have been updated to reflect those determined by planning. This information may differ from that found within the permit application.

Staff determined that for all outfalls, with the exception of Outfall 016 and Outfall 022, the drainage area is less than five square miles. Based on a drainage area of five square miles or less, critical flows will be equal to zero.

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations:

<u> X </u>	State Water Control Law	<u> </u>	EPA Guidelines
<u> X </u>	Clean Water Act	<u> X </u>	Water Quality Standards
<u> X </u>	VPDES Permit Regulation	<u> X </u>	Other – 9VAC25-151*
<u> X </u>	EPA NPDES Regulation	<u> X </u>	Other – 9VAC25-194** / 9VAC25-196***

6. Statutory or Regulatory Basis for Special Conditions and Effluent Limitations (Continued):

9VAC25-151* General VPDES Permit for Stormwater Discharges Associated with Industrial Activity

9VAC25-194** General VPDES Permit for Vehicle Wash and Laundry Facilities

9VAC25-196*** General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons Per Day or Less

7. Licensed Operator Requirements: NA (Industrial Discharge)

8. Reliability Class: Class NA (Industrial Discharge)

9. Permit Characterization:

<input type="checkbox"/> Private	<input checked="" type="checkbox"/> Effluent Limited	<input checked="" type="checkbox"/> Possible Interstate Effect
<input checked="" type="checkbox"/> Federal	<input checked="" type="checkbox"/> Water Quality Limited	<input type="checkbox"/> Compliance Schedule Required
<input type="checkbox"/> State	<input type="checkbox"/> Whole Effluent Toxicity Program Required	<input type="checkbox"/> Interim Limits in Permit
<input type="checkbox"/> WTP	<input type="checkbox"/> Pretreatment Program Required	<input type="checkbox"/> Interim Limits in Other Document
<input type="checkbox"/> TMDL	<input type="checkbox"/> e-DMR Participant	

10. Industrial Stormwater and Industrial Wastewater Sources:

U.S. Army Garrison – Fort Belvoir (Fort Belvoir) is an installation whose mission is to provide logistical, intelligence, and administrative support to a diverse mix of commands, activities, and agencies.

Fort Belvoir houses tenants from each of the military forces, as well as such Department of Defense agencies as the Army Management Staff College, the Defense Logistics Agency, the Missile Defense Agency and the Defense Acquisition University. It is a broadly based community functioning in many ways like a small city, with its own ordinances, land use plan, building codes, utilities, public parks, hospital complex and operations, airfield, and academic institutions.

Discharges from the installation are primarily comprised of stormwater runoff which has come in contact with industrial activities from various sources on U.S. Army Garrison - Fort Belvoir, as well as industrial wastewaters to include non-contact cooling water and vehicle wash water. This permit identifies thirty-three primary outfalls which have been deemed substantially identical (i.e., representative) to 185 other outfalls on the 8500 acre installation. Nomenclature for the representative outfalls was determined by Fort Belvoir and is based on identifying numbers previously assigned to the respective discharge structure. All outfalls are identified in Table 1 below.

See Attachment 3 for the NPDES Permit Rating Worksheet.

TABLE 1 – Outfall Description		
Outfall Number	Outfall Description*	Substantially Identical Outfalls
001 (4944)	Davison Army Airfield - North	4942
002 (4951)	Davison Army Airfield - East	4715, 4842, 4843, 4844, 4847, 4852, 4868, 4870, 4910, 4911, 4928, 4940, 4948, 4954, 4956, 4958
003 (4991)	Davison Army Airfield - South	4668, 4669, 4670, 4671, 4696, 4706
004 (4437)	Belvoir Training Area	3302, 3992, 3993, 4430, 4432, 4434, 4435, 4442, 4444, 4446, 4450, 4452
005 (2758)	HazWaste Facility (<90 day)	2759

TABLE 1 – Outfall Description (Continued)

Outfall Number	Outfall Description*	Substantially Identical Outfalls
006 (2944)	National Guard Motor Pool	None
007 (2822)	21 st Street Waste Facility	2823, 2829, 2832
008 (5023)	Aerospace Data Facility (NE)	5015, 5017, 5018, 5021, 5026, 5028, 5038
009 (5724)	Swank-Snyder Golf Course	4040, 4042, 4044, 4050, 4052, 4054, 4300, 5318, 5320, 5321, 5594, 5596, 5597, 5726, 5729, 5767, 5768, 5779, 5782, 5784, 5788, 5844
010 (3244)	249 th Prime Power Motor Pool (Meade Road)	3243, 3258, 3260
011 (7242)	12 th Aviation Motor Pool / Washrack	3209, 3211, 3215, 3220, 3222
012 (5511)	Mosby Center	5510, 5512, 5514, 5521, 5737, 5740
013 (3761)	Arby's / Army and Air Force Exchange Station	3762, 3763, 3771
014 (3755)	Army and Air Force Exchange Station	3745, 3752, 3753, 3756, 3757, 3758, 3759, 3773
015 (2179)	16 th Street Storage Area	1611, 1636, 1696, 2176, 2941, 5818, 5889, 5892
016 (4471)	Dogue Creek Marina	4467, 4469, 4474
017 (7243)	Building 1809 (Recycling Center and Compost Yard)	None
018 (1828)	300 Area – Totten Road	None
019 (2196)	300 Area – Building 322 General Lab	1826, 1827, 1829, 1830, 1834, 1836, 1882, 1994, 2034, 2036, 2037, 2538, 2539, 2540
020 (2193)	300 Area – Building 324 Lab and Storage	1814, 1821, 1824, 1927, 1931, 1933, 1938, 1941, 2193
021 (2189)	300 Area – Building 324 Night Vision	1728, 1798, 1801, 1803, 1806, 1817, 2182, 2184, 2185
022 (2128)	300 Area - Marina	1810, 1886, 1889, 1892
023 (2775)	Building 1497 (Warehouses)	2753, 2755, 2766, 2769, 2781, 2796, 2949, 2950
024 (5234)	Aerospace Data Facility (SW)	5203, 5220, 5225, 5232, 5242, 5274, 5280
025 (3339)	Meade Road Contractor Lot	3345, 3346, 3348
026 (376)	A08 and A09 (Markham School)	350, 377, 584
027 (7245)	A02 (Theote Landfill)	None
028 (4334)	A06 (Building 2310 Landfill)	4264, 4269, 4270, 4338, 5643, 5644
029 (6004)	A07 and A25 (Mulligan Road Landfill)	6007
030 (7244)	A26 (Pohick Road Landfill)	None
031 (6348)	Belvoir North – NGA Area Pond 6	None

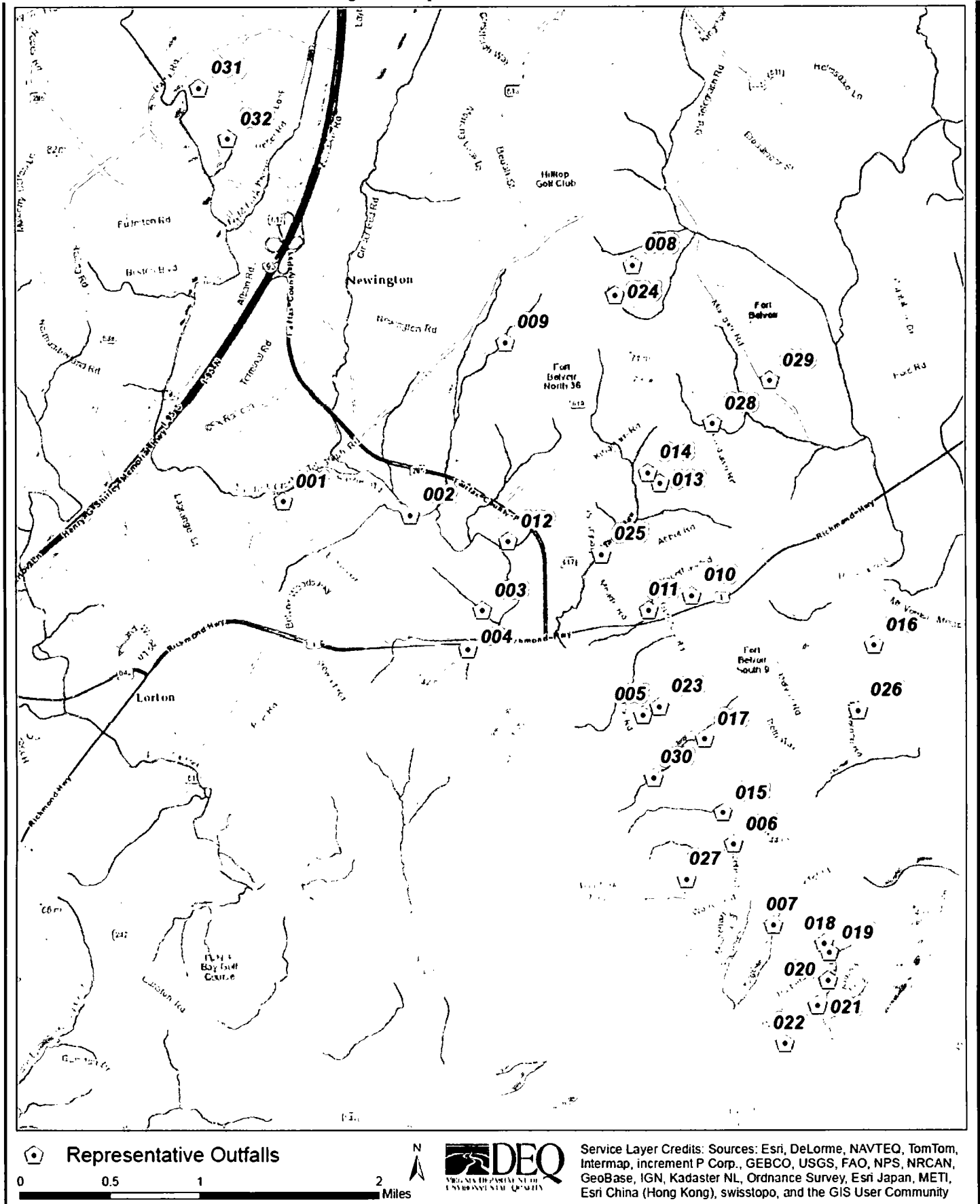
TABLE 1 – Outfall Description (Continued)		
Outfall Number*	Outfall Description**	Substantially Identical Outfalls
032 (6207)	Belvoir North – NGA Area Pond 8	6209, 6222
033***	249 th Prime Power Motor Pool (Pohick and Theote Roads)	To Be Determined

* See Figure 1 below for outfall locations in relation to the installation. The numbers in parenthesis following the outfall number is nomenclature determined by Fort Belvoir and is based on identifying numbers previously assigned to the respective discharge structure.

** See Attachment 2 and Attachment 5 for additional information on each of the outfalls presented above.

*** The 249th Prime Power Motor Pool will be moving from the location associated with Outfall 010 to a new location at Pohick and Theote Roads. As of the drafting date of the permit, Outfall 033 was not yet in service.

Figure 1. Representative Outfall Locations



11. Solids Treatment and Disposal Methods:

All domestic wastewater is discharged to the Noman M. Cole, Jr. Pollution Control Plant (VA0025364).

12. Discharges and/or Monitoring Stations in Vicinity of Discharge:

- a. The monitoring stations and facilities listed below in Table 2 either discharge to or are located within the waterbody VAN-A15R. There are no public water supply intakes within a five mile radius of any of the outfalls discussed in Attachment 2 and Attachment 5.

TABLE 2 (VAN-A15R)	
1aACO001.78	DEQ monitoring station (fish tissue)
1aACO002.50	DEQ ambient monitoring station at Route 1
1aACO004.84	DEQ ambient monitoring station at Route 611 (Telegraph Road) bridge crossing
1aACO006.10	DEQ ambient monitoring station at Route 790 (Alban Road) bridge
1aACO009.14	DEQ biological monitoring station upstream of Route 636 and Fairfax County Parkway
VA0001872	Joint Basin Corporation – Fairfax Terminal (Daniels Run, Unnamed Tributary)*
VA0001945	Kinder Morgan Southeast Terminals, LLC – Newington (Accotink Creek, UT)
VA0001988	Kinder Morgan Southeast Terminals, LLC – Newington 2 (Accotink Creek, UT)
VA0002283	Motive Enterprises, LLC (Crook Branch)
VAG406519	Margaret Bardwell Residence (Accotink Creek, UT)
VAG750224	Enterprise Rent A Car (Calamo Branch, UT)
VAG750226	Enterprise Rent A Car (Accotink Creek, UT)
VAG750238	Ravensworth Collision Center (Accotink Creek, UT)
VAG110046	Virginia Concrete – Newington Plant 1 (Accotink Creek, UT)
VAG110069	Virginia Concrete – Mid Atlantic Materials – Newington (Accotink Creek, UT)
VAR051042	SICPA Securink Corporation (Accotink Creek, UT)
VAR051047	Fairfax County Connector Bus Yard (Long Branch, UT)
VAR051066	United States Postal Service – Merrifield Vehicle Maintenance (Long Branch, UT)
VAR051080	United States Army – Fort Belvoir – Building 1442 (Accotink Creek)
VAR051565	Rolling Frito Lay Sales, LP – South Potomac DC (Long Branch)
VAR051770	Fairfax County – Jermantown Maintenance Facility (Accotink Creek, UT)
VAR051771	Fairfax County – Newington Maintenance Facility (Long Branch)
VAR051772	Fairfax County – Alban Maintenance Facility (Field Lark Branch)
VAR051795	HD Supply – White Cap (Accotink Creek, UT)
VAR051863	United Parcel Service – Newington (Accotink Creek, UT)
VAR052188	Milestone Metals (Long Branch, UT)
VAR052223	Newington Solid Waste Vehicle Facility (Long Branch, UT)

* UT – Unnamed Tributary

- b. The monitoring stations listed below in Table 3 are located within the waterbody VAN-A15E.

TABLE 3 (VAN-A15E)	
1aDOU000.60	DEQ ambient monitoring station across from the Mount Vernon Yacht Club
1aDOU001.40	DEQ ambient monitoring station near the Fort Belvoir Marina
1aDOU002.01	DEQ ambient monitoring station at Route 235 (Mount Vernon Highway)
1aDOU002.59	DEQ ambient monitoring station at Route 1
1aPOH000.19	DEQ estuarine probabilistic monitoring station off Gunston Cove off Gunston Hall
1aPOH000.21	DEQ ambient monitoring station at marker 62 for the Potomac River, just inside the mouth of Gunston Cove
1aPOH000.93	DEQ ambient monitoring station off Gunston Hall
1aPOH001.56	DEQ estuarine probabilistic monitoring station off Gunston Cove of Pohick Creek at Gunston Hall

13. Material Storage:

See Attachment 4 for a list of materials storage. An updated list was provided by the permittee on October 29, 2015, and may therefore differ from that found within the permit application.

14. Site Inspection:

Site visits were conducted on September 17, 2013, October 23, 2013, October 24, 2013, October 30, 2013, November 14, 2013, and June 17, 2014. Information gathered during the site visits is included within the outfall discussion found in Attachment 5.

15. Receiving Stream Water Quality and Water Quality Standards:

a. Ambient Water Quality Data

1. Outfalls 001, 002, 003, 009, 012, 031, 032 each discharge into a different unnamed tributary to free-flowing Accotink Creek. These 7 tributaries have not been monitored or assessed by DEQ. The nearest DEQ ambient monitoring station on Accotink Creek for Outfalls 001, 002, 003, 009 and 012 is 1aACO004.84*. This station is located at the Rt. 611 bridge crossing, approximately 0.1, 0.86, 2.16, 1.03, and 1.64 miles upstream of the confluence of Accotink Creek with the unnamed receiving stream for each outfall, respectively. The nearest downstream DEQ ambient monitoring station on Accotink Creek for Outfalls 031 and 032 is 1aACO006.10, which is located at the Route 790 bridge. This station is located approximately 2.1 and 1.8 miles downstream of Outfalls 031 and 032, respectively. The following is the water quality summary for free-flowing Accotink Creek, as taken from the 2012 Integrated Report:

Class III, Section 7, special standards - b.

DEQ monitoring stations located in this segment of Accotink Creek:

- Ambient monitoring station 1aACO002.50, at Route 1,
- Ambient monitoring station 1aACO004.84*, at Route 611 (Telegraph Road)
- Ambient monitoring station 1aACO006.10, at Route 790
- Biological monitoring station 1aACO009.14, upstream of Route 636 and Fairfax County Parkway.

The fish consumption use is assessed as not supporting due to data collected previously at DEQ's fish tissue/sediment station 1aACO004.86*, at Route 611. Fish tissue data revealed exceedances of the water quality criterion based tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) recorded in tissue from 3 species of fish (America eel, redbreast sunfish and rainbow trout) in 2004. Also, at station 1aACO002.50 in 2005, SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs), which is noted by an observed effect. Additionally, exceedances of the water quality criterion based tissue value (TV) for heptachlor epoxide and dieldrin were also noted by observed effects for the 2008 assessment.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL has been completed and EPA approved for this segment.

Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use.

The wildlife use is considered fully supporting.

*Please note: There are two station identifications (ID) for roughly the same location, 1aACO004.84 and 1aACO004.86. Station 1aACO004.84 was established by the Water Quality monitoring group and was actively sampled during the 2012 data window (2005-2010) for the 2012 Integrated Assessment. Those stations which were actively sampled are listed in the discussion above. The narrative above also includes a reference to Station 1aACO004.86, which was established by the fish tissue and sediment program. This station was last sampled in 2004 which is outside of the 2012 data window, and as such, was not included in the list of stations above. It is, however, mentioned in the narrative as there is an impairment based on that 2004 sample.

2. Outfalls 004, 005, 010, 011, 013, 014, 015, 017, 023, 025, 027 and 030 discharge into a number of different tributaries to tidal Accotink Bay, all of which have not been monitored or assessed. Outfall 025 discharges into a named tributary, Mason Run. Outfalls 013 and 014 each discharge into a different unnamed tributary to Mason Run. Each of the remaining outfalls discharge into one of six different unnamed tributaries. The following is the water quality summary for the downstream segment of Accotink Bay, as taken from the 2012 Integrated Report:

Class II, Section 6, special standards - b, y.

DEQ monitoring station located in this segment of Accotink Bay:

- Fish tissue monitoring station 1aACO001.78.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. There was an excursion above the water quality criterion based tissue value (TV) of 110 parts per billion (ppb) for total chlordane in gizzard shad (2005), noted by an observed effect. Additionally, excursions above the risk-based tissue screening value (TSV) of 270 parts per billion (ppb) for arsenic (As) in fish tissue were recorded in tissue from one specie (American shad) of fish sampled (4 total excursions) in 2006 at monitoring station 1aACO001.78, also noted by an observed effect.

The aquatic life use is fully supporting.* A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed.

The recreation and wildlife uses were not assessed.

*Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.

3. Outfall 022 discharges into tidal Gunston Cove. The closest DEQ ambient monitoring station is 1aPOH000.93, located approximately 0.47 miles from Outfall 022. The following is the water quality summary for this portion of Gunston Cove, as taken from the 2012 Integrated Report:

Class II, Section 6, special standards - b, y.

DEQ monitoring stations located in this portion of Gunston Cove:

- Ambient monitoring station 1aPOH000.21, at marker 62
- Ambient monitoring station 1aPOH000.93, off Gunston Hall
- Estuarine probabilistic monitoring station 1aPOH001.56 (sampled in 2004)
- Estuarine probabilistic monitoring station 1aPOH000.19 (sampled in 2007)

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The aquatic life use is fully supporting*. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed. The wildlife and recreation uses are considered fully supporting.

Samples were collected for Coastal 2000 weight of evidence analysis, utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions at station 1aPOH000.19. This analysis resulted in insufficient information to determine support of any designated uses. However, it was noted that some possibilities for benthic alteration could be a result of nutrient enrichment, habitat condition, habitat type, or a high energy environment. However, toxic contaminants are an unlikely cause of the stressed community.

*Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.

4. Outfalls 006, 007, 018, 019, 020 and 021 each discharge into one of four unnamed tributaries to Gunston Cove, all of which have not been monitored or assessed. The nearest downstream DEQ ambient monitoring station is in Gunston Cove, 1aPOH000.93, located off Gunston Hall. This station is located approximately 1.45, 0.98, 1.31, 1.37, 1.1, and 0.96 miles downstream of the outfalls, respectively. Discharge from these outfalls flow into the segment of Gunston Cove described in Section 15.a.3.
5. Outfalls 008, 024, 028 and 029 each discharge into a different unnamed tributary to Dogue Creek. These 4 tributaries have not been monitored or assessed by DEQ. The most recent sampled downstream DEQ ambient monitoring station is on Dogue Creek, 1aDOU003.17. This station is located at the Rt. 622 bridge crossing, approximately 1.88 and 2.2 miles downstream of Outfalls 008 and 024, respectively. This station is located 0.25 miles upstream of the confluence of Dogue Creek with the unnamed tributary that discharge from Outfalls 028 and 029 eventually flow into. The following is the water quality summary for this segment of Dogue Creek, as taken from the 2012 Integrated Report:

Class III, Section 7, special standards - b.

DEQ ambient water quality monitoring station 1aDOU002.59, at Route 1 (last sampled 2002)

The aquatic life and wildlife uses are considered fully supporting. The fish consumption and recreation* uses were not assessed.

* Please note: The recreation use is listed as not supporting in the Draft 2014 Integrated Report, due to exceedances of *E. coli* bacteria.

6. Outfall 016 discharges into tidal Dogue Creek. DEQ station 1aDOU000.60, located approximately 0.82 miles downstream of Outfall 016, has the most recent monitoring data. The following is the water quality summary for this portion of Dogue Creek, as taken from the 2012 Integrated Report:

Class II, Section 6, special standards - b, y.

DEQ monitoring stations located in this portion of Dogue Creek:

- Ambient monitoring station 1aDOU000.60, across from the Mount Vernon Yacht Club
- Ambient monitoring station 1aDOU001.40, near the Fort Belvoir Marina
- Ambient monitoring station 1aDOU002.01, at Route 235.

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. Water quality data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs) in a grab sample at station 1aDOU002.01, which is noted by an observed effect. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The aquatic life use is fully supporting*. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed. The wildlife and recreation uses are considered fully supporting.

*Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.

7. Outfall 026 discharges into an unnamed tributary to tidal Dogue Creek. This unnamed tributary has not been monitored or assessed by DEQ. The nearest downstream DEQ ambient monitoring station is in the tidal portion of Dogue Creek, 1aDOU000.60. This station is located across from the Mount Vernon Yacht Club, approximately 0.82 miles downstream of Outfall 026. Discharge from this outfall flows into the segment of Tidal Dogue Creek described in Section 15.a.6.

b. 303(d) Listed Stream Segments and Total Maximum Daily Loads (TMDLs)

Table 4 includes the impairment information for the receiving stream and downstream segments included in the 2012 Integrated Report. Part I of the Table 4 consists of the impairment information for segments located in the Accotink Creek and Pohick watersheds and Part II consists of impairments in the Dogue Creek watershed. The segments in each watershed are listed in order from upstream to downstream.

TABLE 4 (Impairment Information in VA 2012 Integrated Report)

Waterbody Name	Outfalls	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	Year First Listed as Impaired
Part I							
Accotink Creek	Downstream of: 001 002 003 009 012 031 032	Recreation	<i>E. coli</i>	Lower Accotink Bacteria 12/18/08	none	Not expected to discharge pollutant	2004
		Aquatic Life	Benthic Macroinvertebrates	No	--	--	2004
		Fish Consumption	PCBs	No	--	--	2010
Accotink Bay*	Downstream of: 004 015 005 017 010 023 011 025 013 027 014 030	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	0.0992 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004
Pohick Bay*		Aquatic Life	pH	No	--	--	2012
		Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	7.58 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004
Gunston Cove*	Receiving Stream for: 022 Downstream of: 006 019 007 020 018 021	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	0.517 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004

TABLE 4 (Impairment Information in VA 2012 Integrated Report) - Continued

Waterbody Name	Outfalls	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	Year First Listed as Impaired
Part II							
Tidal Dogue Creek*	Receiving Stream for: 016 Downstream of^: 008 028 024 029	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	20.2 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004

* Please note that in the Draft 2014 Integrated Assessment, these tidal segments are listed with a dissolved oxygen impairment for the aquatic life use. The dissolved oxygen impairment will be covered by the completed TMDL for the Chesapeake Bay watershed; however, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

^ Outfalls 008, 024, 028 and 029 discharge into unnamed tributaries to the free-flowing portion of Dogue Creek. This free-flowing segment of Dogue Creek is listed as not supporting the recreation use due to exceedances of *E. coli* bacteria in the Draft 2014 Integrated Assessment.

Significant portions of the Chesapeake Bay and its tributaries are listed as impaired on Virginia's 303(d) list of impaired waters for not meeting the aquatic life use support goal, and the 2012 Virginia Water Quality Assessment 305(b)/303(d) Integrated Report indicates that much of the mainstem Bay does not fully support this use support goal under Virginia's Water Quality Assessment guidelines. Nutrient enrichment is cited as one of the primary causes of impairment. EPA issued the Bay TMDL on December 29, 2010. It was based, in part, on the Watershed Implementation Plans developed by the Bay watershed states and the District of Columbia.

The Chesapeake Bay TMDL addresses all segments of the Bay and its tidal tributaries that are on the impaired waters list. As with all TMDLs, a maximum aggregate watershed pollutant loading necessary to achieve the Chesapeake Bay's water quality standards has been identified. This aggregate watershed loading is divided among the Bay states and their major tributary basins, as well as by major source categories [wastewater, urban stormwater, onsite/septic agriculture, air deposition]. Fact Sheet Section 18.c provides additional information on specific nutrient monitoring for this facility to implement the provisions of the Chesapeake Bay TMDL.

The full planning statement is found in Attachment 6.

c. Receiving Stream Water Quality Criteria

Part IX of 9VAC25-260(360-550) designates classes and special standards applicable to defined Virginia river basins and sections.

- 1) *Accotink Bay, UT, Accotink Creek, UT, Dogue Creek, UT, Gunston Cove, UT, Mason Run, and Mason Run, UT*
At all times, Class III waters must achieve a dissolved oxygen (D.O.) of 4.0 mg/L or greater, a daily average D.O. of 5.0 mg/L or greater, a temperature that does not exceed 32°C, and maintain a pH of 6.0-9.0 standard units (S.U.).
- 2) *Dogue Creek and Gunston Cove*
Dogue Creek and Gunston Cove are located within Section 6 of the Potomac River Basin, and are classified as Class II waters. Class II tidal waters in the Chesapeake Bay and its tidal tributaries must meet dissolved oxygen concentrations as specified in 9VAC25-260-185 and maintain a pH of 6.0-9.0 standard units (S.U.) as specified in 9VAC25-260-50. In the Northern Virginia area, Class II waters must meet the Migratory Fish Spawning and Nursery Designated Use from February 1 through May 31. For the remainder of the year, these tidal waters must meet the Open Water use. The applicable dissolved oxygen concentrations are presented in Attachment 7.

Attachment 8.a (non-tidal) and Attachment 8.b (tidal) details other water quality criteria applicable to the receiving streams.

Ammonia:

The freshwater, aquatic life Water Quality Criteria for Ammonia are dependent on the instream and/or effluent temperature and pH. The 90th percentile temperature and pH values are used because they best represent the critical design conditions of the receiving stream. It is staff's professional judgement that a default pH value of 8.0 S.U. and a default temperature value of 25°C are suitable to calculate the ammonia water quality standards. The ammonia water quality standards calculations are shown in Attachment 8.a (non-tidal) and Attachment 8.b (tidal).

Ammonia, as N, is generally not a parameter of concern due to the fact the discharges are stormwater with no industrial activity that would generate ammonia. As such, there is no reasonable potential to exceed the ammonia criteria and limit derivation is not warranted. However, ammonia monitoring is included for Outfall 001, Outfall 002, and Outfall 003 based on the requirements of the *General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons Per Day or Less* (9VAC25-196) and Outfall 017 based on the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (9VAC25-151). See Attachment 5 for more discussion.

Metals Criteria:

The Water Quality Criteria for some metals are dependent on the receiving stream's hardness (expressed as mg/L calcium carbonate). There is no Total Hardness data for this facility. Staff guidance suggests using a default hardness value of 50 mg/L CaCO₃ for streams east of the Blue Ridge. The hardness-dependent metals criteria in Attachment 8.a (non-tidal) and Attachment 8.b (tidal) are based on this default value.

d. Receiving Stream Special Standards

The State Water Control Board's Water Quality Standards, River Basin Section Tables (9VAC25-260-360, 370 and 380) designates the river basins, sections, classes, and special standards for surface waters of the Commonwealth of Virginia.

- 1) Accotink Bay, UT, Accotink Creek, UT, Dogue Creek, UT, Gunston Cove, UT, Mason Run, and Mason Run, UT
The receiving streams above are located within Section 7 of the Potomac River Basin. This section has been designated with a special standard of "b".

Special Standard "b" (Potomac Embayment Standards) established effluent standards for all sewage plants discharging into Potomac River embayments and for expansions of existing plants discharging into non-tidal tributaries of these embayments. 9VAC25-415, Policy for the Potomac Embayments controls point source discharges of conventional pollutants into the Virginia embayment waters of the Potomac River, and their tributaries, from the fall line at Chain Bridge in Arlington County to the Route 301 Bridge in King George County. The regulation sets effluent limits for BOD₅, total suspended solids, phosphorus, and ammonia, to protect the water quality of these high profile waterbodies. The Potomac Embayment Standards are not applied to this industrial discharge since the discharge does not contain the pollutants of concern in appreciable amounts.

- 2) Dogue Creek and Gunston Cove
The receiving streams above are located within Section 6 of the Potomac River Basin. This section has been designated with special standards of "b" and "y".

Please see Section 15.d.1 above for discussion Special Standard "b".

Special Standard "y" is the chronic ammonia criterion for tidal freshwater Potomac River and tributaries that enter the tidal freshwater Potomac River from Cockpit Point (below Occoquan Bay) to the fall line at Chain Bridge. During November 1 through February 14 of each year the thirty-day average concentration of total ammonia nitrogen (in mg N/L) shall not exceed, more than once every three years on the average the following chronic ammonia criterion:

$$\frac{0.0577}{1 + 10^{7.688 - \text{pH}}} - \frac{2.487}{1 + 10^{\text{pH} - 7.688}} \times 1.45(10^{0.028(25 - \text{MAX})})$$

MAX = temperature in °C or 7, whichever is greater.

The default design flow for calculating steady state waste load allocations for this chronic ammonia criterion is the 30Q10, unless statistically valid methods are employed which demonstrate compliance with the duration and return frequency of this water quality criterion. This standard is not applicable to these industrial discharges.

16. Antidegradation (9VAC25-260-30):

All state surface waters are provided one of three levels of antidegradation protection. For Tier 1 or existing use protection, existing uses of the water body and the water quality to protect these uses must be maintained. Tier 2 water bodies have water quality that is better than the water quality standards. Significant lowering of the water quality of Tier 2 waters is not allowed without an evaluation of the economic and social impacts. Tier 3 water bodies are exceptional waters and are so designated by regulatory amendment. The antidegradation policy prohibits new or expanded discharges into exceptional waters.

All receiving streams have been classified as Tier I because of the highly developed receiving stream watersheds in Fairfax County (Accotink Creek) and the District of Columbia metropolitan area (Potomac River), and the water quality impairments noted for the receiving waters. The permit limits proposed have been established by determining wasteload allocations which will result in attaining and/or maintaining all water quality criteria which apply to the receiving streams, including narrative criteria. These wasteload allocations will provide for the protection and maintenance of all existing uses.

17. Effluent Screening and Wasteload Allocation Development:

To determine water quality-based effluent limitations for a discharge, the suitability of data must first be determined. Data is suitable for analysis if one or more representative data points is equal to or above the quantification level ("QL") and the data represent the exact pollutant being evaluated.

1) Accotink Bay, UT, Accotink Creek, UT, Dogue Creek, UT, Gunston Cove, UT, Mason Run, and Mason Run, UT

The appropriate Water Quality Standards (WQS) are determined for the pollutants in the effluent. Then, the Wasteload Allocations (WLA) are calculated. In this case since the critical flows 7Q10 and 1Q10 have been determined to be zero, the WLA's are equal to the WQS. The WLA values are then compared with available effluent data to determine the need for effluent limitations. Effluent limitations are needed if the 97th percentile of the daily effluent concentration values is greater than the acute wasteload allocation or if the 97th percentile of the four-day average effluent concentration values is greater than the chronic wasteload allocation. Effluent limitations are based on the most limiting WLA, the required sampling frequency, and statistical characteristics of the effluent data.

a. Effluent Screening:

See Attachment 5, Attachment 8.a, and Attachment 9.a – 9.j, Attachment 9.l – 9.o, and Attachment 9.q for discussion and rationale.

b. Mixing Zones and Wasteload Allocations (WLAs):

Wasteload allocations (WLAs) are calculated for those parameters in the effluent with the reasonable potential to cause an exceedance of water quality criteria. The basic calculation for establishing a WLA is the steady state complete mix equation:

$$WLA = \frac{C_o [Q_e + (f)(Q_s)] - [(C_s)(f)(Q_s)]}{Q_e}$$

Where:	WLA	=	Wasteload allocation
	C _o	=	In-stream water quality criteria
	Q _e	=	Design flow
	Q _s	=	Critical receiving stream flow (1Q10 for acute aquatic life criteria; 7Q10 for chronic aquatic life criteria; 30Q10 for ammonia criteria; harmonic mean for carcinogen-human health criteria; and 30Q5 for non-carcinogen human health criteria)
	f	=	Decimal fraction of critical flow
	C _s	=	Mean background concentration of parameter in the receiving stream.

The receiving streams noted above are considered to have a 7Q10 and 1Q10 of 0.0 MGD. As such, there is no mixing zone and the WLA is equal to the C_o. In cases such as this, discharge flow is not required to calculate the WLA. However, discharge flow is needed as a placeholder for the calculation to work. As such, the discharge flow found in Attachment 8.a (non-tidal) is the average maximum flow for all non-tidal outfalls where flow data is available.

2) Dogue Creek and Gunston Covea. Effluent Screening:

See Attachment 5, Attachment 8.b, and Attachment 9.k and Attachment 9.p for discussion and rationale.

b. Tidal Water Quality Wasteload Allocations (Tidal WQWLAs):

The receiving streams, Dogue Creek and Gunston Cove, are tidally influenced. The acute wasteload allocations are established by multiplying the acute water quality criteria by a factor of 2 unless there is site specific dilution data available. The two times factor is derived from acute criteria being defined as one half of the final acute value (FAV) for a specific toxic pollutant. The FAV is determined from exposure of the specific toxicant to a variety of aquatic species, and is based on the level of a chemical or mixture of chemicals that does not allow the mortality, or other specified response, of aquatic organisms. These criteria represent maximum pollutant concentration values, which when exceeded, would cause acute effects on aquatic life in a short time period. Because stormwater flows are considered intermittent and of short term duration, there is no reasonable potential to cause or contribute to a chronic exceedance. As such, chronic wasteload allocations are not being developed. The above Tidal WQWLA determinations are consistent with the instructions found within DEQ Guidance Memo 00-2011.

Because site specific dilution data are not available, a default acute dilution factor of 2:1 shall be used (based on DEQ Guidance Memo 00-2011). Attachment 8.b (tidal) summarizes the wasteload allocation determinations.

18. Stormwater Monitoring Development:

a. Stormwater Only Pollutants

VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on storm water outfalls at this time because the methodology for developing limits and the proper method of sampling is still a concern and under review/reevaluation by EPA. Exceptions would be where a VPDES permit for a storm water discharge has been issued that includes effluent limitations (backsliding must be considered before these limitations can be modified) and where there are reliable data, obtained using sound, scientifically defensible procedures, which provide the justification and defense for an effluent limitation. Therefore, in lieu of limitations, pollutants are assessed against screening criteria developed solely to identify those pollutants that should be given special emphasis during development and assessment of the Storm Water Pollution Prevention Plan (SWPPP).

Stormwater discharges are considered intermittent and as such, the primary concern would be acute water quality impacts. The duration of this discharge is not expected to occur for four or more consecutive days (96 hours). Water Quality Criteria for human health (and chronic toxicity to a lesser degree) are based upon long term, continuous exposure to pollutants from effluents, and stormwater discharges are short term and intermittent. Therefore, it is believed that acute criteria should be used to derive the screening criteria.

Screening (i.e., decision) values expressed as action levels have been established at two times the acute water quality criterion established in the Virginia Water Quality Standards (9VAC25-260 et.seq.). There are two primary reasons the action levels are established at two times the criterion. First, the acute criteria is defined as one-half of the final acute value (FAV) for a specific toxic pollutant. The FAV is determined from exposure of the specific toxicant to a variety of aquatic species, and is based on the level of a chemical or mixture of chemicals that does not allow the mortality, or other specified response, of aquatic organisms. These criteria represent maximum pollutant concentration values, which when exceeded, would cause acute effects on aquatic life in a short time period.

Second, if it is raining a sufficient amount to generate a discharge of stormwater, it is assumed that the receiving stream flow will be greater than the critical flows of zero million gallons per day for intermittent streams due to stormwater runoff within the stream's drainage area. In recognition of the FAV and the dilution caused by the rainfall, the action levels were calculated by multiplying the acute Water Quality Criteria by two (2). The acute criterion and action levels established in the permit are presented in Attachment 5 on an outfall-by-outfall basis.

These action levels are applied solely to identify those pollutants that should be given special emphasis during development of the Stormwater Pollution Prevention Plan (SWPPP). Stormwater outfall data (pollutant specific) submitted by the permittee which are above the established action levels requires monitoring in Part I.A. of the permit for that specific outfall and pollutant. Should stormwater outfall monitoring data exceed the established action levels, the permittee shall reexamine the effectiveness of the SWPPP and BMPs in use and modify as necessary to address any deficiencies that caused the exceedances.

For purposes of this permit, action levels are referred to as benchmark concentrations to provide consistency with language found within the industrial stormwater general permit. The industrial stormwater permit serves as the basis and foundation for this permit. See Section 18.d of this Fact Sheet for additional information.

b. Federal Effluent Guidelines

40 CFR Part 449 establishes Federal Effluent Limitation Guidelines for the Airport Deicing Point Source Category. This part applies to discharges of pollutants from deicing operations at primary airports. As defined in 49 U.S. Code §47102, "primary airport" means a commercial service airport the Secretary determines to have more than 10,000 passenger boardings each year.

Based on the above definition, the Federal Effluent Limitation Guidelines in 40 CFR Part 449 are not applicable to the stormwater discharges from Outfalls 001, 002, and 003 at Davison Army Airfield.

c. Nutrients

EPA's Chesapeake Bay TMDL (December 29, 2010) included wasteload allocations for VPDES permitted industrial stormwater facilities as part of the regulated stormwater aggregate load. EPA used data submitted by Virginia with the Phase I Chesapeake Bay TMDL Watershed Implementation Plan (WIP), including the number of industrial stormwater permits per county and the number of urban acres regulated by industrial stormwater permits, as part of their development of the aggregate load. Aggregate loads for industrial stormwater facilities were appropriate because actual facility loading data were not available to develop individual facility wasteload allocations. Virginia estimated the loadings from industrial stormwater facilities using actual and estimated facility acreage information, and Total Phosphorus (TP), Total Nitrogen (TN), and Total Suspended Solids (TSS) loading values from the Northern Virginia Planning District Commission (NVPDC) Guidebook for Screening Urban Nonpoint Pollution Management Strategies, prepared for the Metropolitan Washington Council of Governments (November, 1979).

To better characterize stormwater discharges in support of the Chesapeake Bay TMDL, monitoring for Nitrate + Nitrite, Total Kjeldahl Nitrogen, Total Nitrogen, and Total Phosphorus are included in this permit. In accordance with 9VAC25-151-70, samples shall be collected during each of the first four monitoring periods (i.e., the first two years of permit coverage). See Part III of the permit for additional calculation and reporting requirements.

d. Monitoring Summary

Industrial stormwater has been regulated since the promulgation of EPA's 1990 stormwater regulations, which established National Pollutant Discharge Elimination System (NPDES) permit requirements for stormwater discharges associated with industrial activity. EPA issued its' first Multi-Sector General Permit (MSGP) for stormwater discharges associated with industrial activity on Sept. 29, 1995. EPA's National Water Quality Criteria, published in 1986 (often referred to as the "Gold Book") served as the foundation for benchmark monitoring requirements established within the MSGP.

In 1993 Virginia issued its first General VPDES Permit for Stormwater Discharges Associated with Industrial Activity (SWGP). Since this original permitting action, Virginia has reissued its SWGP in 1999, 2004, 2009, and 2014. In accordance with the stormwater regulations found at 40 CFR 122.26(b)(14)(i)-(ix), Virginia has implemented the categories of industrial activities subject to the stormwater regulations by Standard Industrial Classification (SIC) code, or by a general description of the industrial activities. For those outfalls within this permit where stormwater discharges have the reasonable potential to be impacted by industrial activities identified in 9VAC25-151-50 C (Table 50-2), benchmark monitoring requirements for pollutants of concern associated with the specific "sector" of industrial activity or activities will be applied. Sector descriptions are based on SIC Codes.

As noted above, EPA's National Water Quality Criteria were used to establish benchmark monitoring values for parameters associated with each sector of industrial activity. According to the Federal Register (Volume 60, Number 189), EPA also took in to consideration a number of existing standards and other sources to represent a level above which water quality concerns could arise. EPA also sought to develop values which could realistically be measured and achieved by industrial facilities. The benchmark concentrations that appear in Virginia's 2014 – 2019 SWGP are based on EPA's MSGP and therefore, reflect all criteria, standards, and sources utilized by EPA in their development.

A summary of all stormwater monitoring is provided in Attachment 5 on an outfall-by-outfall basis.

Sample Type and Frequency are in accordance with the recommendations in the VPDES Permit Manual.

19. Antibalancing:

Antibalancing is not applicable since this is a permit issuance.

20. Solid Waste Management Units (SWMU):

In the Subpart S proposed rule (55 FR 30798, July 27, 1990) EPA proposed to define the term "Solid Waste Management Unit" or "SWMU" to mean, "Any discernible unit at which solid wastes have been placed at any time, irrespective of whether the unit was intended for the management of solid or hazardous waste. Such units include any area at a facility at which solid wastes have been routinely and systematically released." SWMUs include regulated units (defined in 40 CFR 264.90 as surface impoundments, waste piles, land treatment units, and landfills that received hazardous waste after July 26, 1982) as well as units used to manage nonhazardous solid wastes (i.e., wastes subject to RCRA Subtitle D). Examples of SWMUs include those noted above in the definition of regulated units as well as sumps, underground piping, land application areas, incinerators, and storage areas. By definition, all regulated units are identified as SWMUs. It should be noted that while EPA announced its decision to withdraw most provisions of the Notice of Proposed Rulemaking (1990 Subpart S proposal), the definition of SWMU remains.

Staff reviewed a document titled *Corrective Measures Study Report for Compliance Cleanup Site CC-A05* developed by Fort Belvoir Environmental and Natural Resources Division in September 2013. This report references a SWMU study conducted by CH2M Hill in 1992 in which the total number of SWMUs at Fort Belvoir was determined to be 248. Over 192 of these SWMUs have received closure from USEPA and DEQ as summarized in the DEQ Statement of Basis published October 20, 2014.

Based on information provided subsequent to the application submitted in March 2014, SWMUs are noted as being present in the drainage area to a number of outfalls proposed for coverage under this permit. Limited information is available with respect to these SWMUs including possible impacts to receiving streams from stormwater runoff associated with these treatment units. As such, it is staff's professional judgement that the requirement for a SWMU study be incorporated with this issuance. The permittee shall provide an evaluation of all active SWMUs within the drainage area of those outfalls identified in Part I.A.1 – Part I.A.32 of the permit. For purposes of this permit, an active SWMU is one that has been deemed active under Resource Conservation and Recovery Act (RCRA) regulations and is active as of the effective date of this permit. The evaluation shall include, but is not limited to, the following:

- An evaluation of the drainage area for each outfall to determine the presence of SWMUs, active or closed;
- A map showing the location of each SWMU within the drainage area for each outfall;
- Designation of type and function of each SWMU within the drainage area for each outfall; and
- To the extent available, information on wastes that are/were managed at each SWMU within the drainage area for each outfall.

The permittee may use existing evaluations and/or studies to meet the SWMU evaluation required above.

To characterize the stormwater runoff from active SWMUs, the permittee shall monitor the discharge from any outfall identified as having an active SWMU (as defined in Part I.C.3.a above) within its drainage area for the substances noted in Attachment A of this VPDES permit. Monitoring for the substances noted in Attachment A, "Water Quality Criteria Monitoring" are to be conducted according to the indicated analysis number, quantification level, sample type and frequency. Monitoring is to be initiated after the start of the second year from the permit's effective date. Using Attachment A as the reporting form, the data and SWMU evaluation are to be submitted with the next application for reissuance which is due at least 180 days prior to the expiration date of this permit. The following conditions are applicable to the stormwater characterization:

- If a SWMU is closed within the first two years of this permit, the permittee shall maintain documentation on site that closure has occurred in conformance with all applicable solid and/or hazardous waste requirements. Stormwater characterization shall not be required.
- If a SWMU is scheduled to close after the second year of this permit, the permittee shall prioritize those SWMUs for stormwater characterization prior to the end of the first five year permit term.

21. Polychlorinated Biphenyls (PCBs):

The free flowing portion of Accotink Creek and the tidal portions of Accotink Bay, Gunston Cove, and Dogue Creek are listed with PCB impairments. Due to these impairments, the installation is a candidate for low-level PCB monitoring based upon its designation as an industrial operation and the historical activities associated with PCBs and resulting contamination. As such, staff recommends that the installation characterize stormwater runoff and develop a plan for PCB sampling at the outfalls located downstream from all known historically contaminated sites. The stormwater characterization, development of a plan for PCB sampling, and the actual sampling shall be completed during the initial five year permit term and submitted with the next application for reissuance which is due at least 180 days prior to the expiration of this permit.

The sampling plan shall incorporate the following requirements:

- Monitoring and analysis shall be conducted in accordance with the most current version of EPA Method 1668, or other equivalent methods capable of providing low-detection level, congener specific results (all 209 PCB congeners). PCB data generated using Method 1668 revisions A, B, and C are acceptable; however, data generated using version A is preferred;
- Any equivalent method shall be submitted to DEQ-NRO for review and approval prior to sampling and analysis. The sampling protocol shall be submitted to DEQ-NRO for review and approval prior to the first sample collection. It is the responsibility of the permittee to ensure that proper QA/QC protocols are followed during the sample gathering and analytical procedures;
- Each sample shall consist of a minimum 2 liter volume. The sample type, either a grab or automated composite, shall be at the discretion of the permittee;
- The permittee shall submit the results electronically. The submittal shall include the unadjusted and appropriately qualified individual PCB congener analytical results; and
- Additionally, laboratory and field QA/QC documentation and results shall be reported. Total PCBs are to be computed as the summation of the reported, quantified congeners.

22. Propylene Glycol:

Deicing activities are proposed at the Davison Army Airfield (Airfield) using Propylene Glycol. In the Northern Virginia area, deicing and/or anti-icing activities typically occur between the months of October and April. However, deicing and/or anti-icing can take place at any time if requested by the aircraft pilot.

Aircraft deicers (ADFs) are categorized into four classes: Type I, Type II, Type III, and Type IV. Based on information submitted by the permittee, Type I fluid is to be utilized. Type I fluids are used primarily for aircraft deicing and contain Propylene Glycol as well as water and a proprietary formulation of additives.

The Airfield proposes to deice mostly transient aircraft on an as needed basis. It is estimated that one to two aircraft will be deiced no more than five times during the "deicing season". Equipment utilized for deicing includes a forty gallon applicator which will contain product based on temperature. It is estimated that the amount of product applied will be forty gallons or less. However, this amount is subject to variation dependent on weather conditions at the time of deicing.

See Attachment 5 for Propylene Glycol sampling requirements on an outfall-by-outfall basis.

23. Representative Outfalls (Substantially Identical Discharges):

In accordance with 9VAC25-151-70, if the facility has two or more outfalls that discharge substantially identical effluents, based on similarities of the industrial activities, significant materials, size of drainage areas, and stormwater management practices occurring within the drainage areas of the outfalls, the permittee may conduct monitoring on the effluent of just one of the outfalls and report that the observations also apply to the substantially identical outfall or outfalls.

Fort Belvoir has identified substantially identical discharges for a majority of the outfalls addressed within this permit issuance. These substantially identical outfalls are identified by a naming convention established by Fort Belvoir. All substantially identical discharges are addressed in Attachment 5.

24. Other Permit Requirements:

- a. Part I.B of the permit contains quantification levels and compliance reporting instructions. 9VAC25-31-190.L.4.c. requires an arithmetic mean for measurement averaging and 9VAC25-31-220.D requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. This permit section lists quantification levels (QLs) necessary to demonstrate compliance with applicable permit limitations or to be used in future evaluations to determine if the pollutant has reasonable potential to cause or contribute to a violation. Required averaging methodologies are also specified.
- b. Part III of the permit details the requirements of Industrial Stormwater Management. Industrial stormwater discharges may contain pollutants in quantities that could adversely affect water quality. Stormwater discharges which are discharged through a conveyance or outfall are considered point sources and require coverage by a VPDES permit. The primary method to reduce or eliminate pollutants in stormwater discharges from an industrial facility is through the use of best management practices (BMPs). Stormwater Management Plan requirements are derived from the VPDES General Permit for Stormwater Discharges Associated with Industrial Activity, 9VAC25-151 et seq.

25. Other Special Conditions:

- a. Notification Levels. Required by VPDES Permit Regulation 9VAC-31-200A for all manufacturing, commercial, mining, and silvicultural discharges. The permittee shall notify the Department as soon as they know or have reason to believe:
 1. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (a) One hundred micrograms per liter;
 - (b) Two hundred micrograms per liter for acrolein and acrylonitrile; five hundred micrograms per liter for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter for antimony;
 - (c) Five times the maximum concentration value reported for that pollutant in the permit application; or
 - (d) The level established by the Board.
 2. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in this permit, if that discharge will exceed the highest of the following notification levels:
 - (a) Five hundred micrograms per liter;
 - (b) One milligram per liter for antimony;
 - (c) Ten times the maximum concentration value reported for that pollutant in the permit application; or
 - (d) The level established by the Board.
- b. Materials Handling/Storage. 9VAC25-31-50 A prohibits the discharge of any wastes into State waters unless authorized by permit. Code of Virginia §62.1-44.16 and §62.1-44.17 authorize the Board to regulate the discharge of industrial waste or other waste.
- c. Water Quality Criteria Monitoring. State Water Control Law §62.1-44.21 authorizes the Board to request information needed to determine the discharge's impact on State waters. States are required to review data on discharges to identify actual or potential toxicity problems, or the attainment of water quality goals, according to 40 CFR Part 131, Water Quality Standards, subpart 131.11. To ensure that water quality criteria are maintained, the permittee is required to conduct a Solid Waste Management Unit (SWMU) study and monitor the discharge from any outfall identified in Part I.A.I – Part I.A. 32 of the permit as having a SWMU within its drainage area for the substances noted in Attachment A of this VPDES permit.
- d. PCB Monitoring. This special condition requires the permittee to characterize stormwater runoff, develop a plan for PCB sampling, and conduct sampling at all outfalls located downstream from all known historically contaminated sites.
- e. TMDL Reopener: This special condition is to allow the permit to be reopened if necessary to bring it in compliance with any applicable TMDL that may be developed and approved for the receiving stream.
- f. Sampling to Fulfill Form 2F Requirements: In some cases, applicants may not have been able to comply with the Form 2F stormwater sampling requirements due to a lack of a representative storm event. This special condition requires the permittee to sample and submit data from a storm event to fulfill the requirements of Form 2F.

- g. Ethylene Glycol Prohibition. The use of Ethylene Glycol by the permittee and/or any tenants is prohibited by this permit.
- h. Effluent Limitation Guideline (ELG) Reopener. This special condition is to allow the permit to be reopened if necessary to address compliance with EPA regulations and any applicable ELG that may be developed and approved for the airline industry.

Permit Section Part II. Required by VPDES Regulation 9VAC25-31-190, Part II of the permit contains standard conditions that appear in all VPDES Permits. In general, these standard conditions address the responsibilities of the permittee, reporting requirements, testing procedures and records retention.

25. Changes to the Permit from the Previously Issued Permit: Not Applicable

26. Variances/Alternate Limits or Conditions: Not Applicable

27. Public Notice Information:

First Public Notice Date: TBD 2016

Second Public Notice Date: TBD 2016

Public Notice Information is required by 9VAC25-31-280 B. All pertinent information is on file and may be inspected, and copied by contacting the: DEQ Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193, Telephone No. (703) 583-3853, susan.mackert@deq.virginia.gov. See Attachment 10 for a copy of the public notice document.

Persons may comment in writing or by email to the DEQ on the proposed permit action, and may request a public hearing, during the comment period. Comments shall include the name, address, and telephone number of the writer and of all persons represented by the commenter/requester, and shall contain a complete, concise statement of the factual basis for comments. Only those comments received within this period will be considered. The DEQ may decide to hold a public hearing, including another comment period, if public response is significant and there are substantial, disputed issues relevant to the permit. Requests for public hearings shall state 1) the reason why a hearing is requested; 2) a brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit; and 3) specific references, where possible, to terms and conditions of the permit with suggested revisions. Following the comment period, the Board will make a determination regarding the proposed permit action. This determination will become effective, unless the DEQ grants a public hearing. Due notice of any public hearing will be given. The public may request an electronic copy of the draft permit and fact sheet or review the draft permit and application at the DEQ Northern Regional Office by appointment.

28. Additional Comments:

Previous Board Action(s): None

Staff Comments: Subsequent to the application submittal, the permittee provided supplemental information on June 30, 2015. This supplemental information is found as Attachment 11. Of note is the proposed relocation of Outfall 010 (249th Prime Power Motor Pool). According to the information provided, the 249th Prime Power Unit will be moving from their current location to a new location at the corner of Pohick and Theote Roads. This move is tentatively slated for 2017 to allow for construction of a new entrance to the installation. Once operational, the outfall associated with the new 249th Prime Power Unit location cannot be designated as Outfall 010 despite the industrial activities within the drainage area remaining the same and the discharge to an unnamed tributary to Accotink Bay remaining the same. For that reason staff has designated the new outfall location as Outfall 033. Because this new outfall location was not included in the application package, it is not accounted for within Attachment 2 or Attachment 6.

Public Comment: TBD

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U.S. Army Garrison – Fort Belvoir
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2016 Issuance

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3510-1X: Existing Environmental Permits

Program Area	Permit	Permit Number	Notes
NR - Wildlife	Salvage Permit	#039296	Allows for salvage of non-game species by permit holder through VA DGIF.
NR - Wetland	Main Post Infrastructure Roads	VWP IP 09-0151	VADEQ Wetlands Permit, issued 20 July 2011.
NR - Wetland	Main Post Infrastructure Roads	NAB-2009-00359	USACE Wetlands Permit issued on 13 July 2009 and 12 September 2011.
NR - Wetland	Theote Road Sanitary Sewer Force Main	NAB-2010-000091	USACE Wetlands Permit issued on 21 May 2010.
NR - Wetland	Farrar Road Bridge DAAF	NAB-2010-00836 VMRC # 10-0846 DEQ-NPR	USACE, VMRC and VADEQ permits.
NR - Wetland	Fort Belvoir PX Shopping Center	NAB-2011-02599	USACE Wetlands Permit, issued 23 September 2011.
NR - Wetland	Fort Belvoir PX Shopping Center	WP4-11-1052	VWP General Permit (VADEQ) issued on 8 September 2011.
NR - Wetland	Poe Road Bridge Repair	NAB-2010-01816	USACE Wetlands Permit issued on 31 August 2010.
NR - Wetland	Poe Road Bridge Repair	VMRC # 10-1223	VMRC Permit issued on 28 September 2010.
NR - Wetland	Army Garrison Fort Belvoir / Watermain Installation & Culvert Replacement	NAB-2011-03323	USACE Wetlands Permit issued on 31 October 2011.
NR - Wetland	Fort Belvoir /Emergency Road Repairs to Poe Road	NAB-2011-03051	USACE Wetland Permit. Request has already been sent to close out this permit.
NR - Wetland	Fort Belvoir Building 324 Upper Parking Lot Expansion	NAB-2012-00504	USACE Wetlands Permit issued on 16 March 2012.

3510-1X: Existing Environmental Permits

Program Area	Permit	Permit Number	Notes
NR - Wetland	Fort Belvoir Building 324 Upper Parking Lot Expansion	DEQ-NPR	VADEQ Wetlands Permit, issued on 27 February 2012.
NR - Wetland	Meade Road Stream	NAB 2012-00891	This site is requesting a nationwide 27 permit, and once received will have a USACE permit number and VADEQ permit number. Official permit has not been issued yet.
NR - Wetland	BEBO Arch Repair - Bank Stabilization	Working for FY12/FY13	This site is requesting a nationwide permit, and once received will have a USACE permit number and VADEQ permit number.
NR - Industrial Stormwater	Industrial Stormwater General Permit DAAF	VAR051080	Industrial Stormwater General Permit for coverage of industrial stormwater discharges associated with DAAF and airfield operations.
NR - MS4	Municipal Separate Storm Sewer Phase II General Permit	VAR040093	MS4 Phase II General Permit coverage with VADCR.
NR - Pesticide	Permit-by-Rule (PBR) Pesticide Application Permit	VAG87	VADEQ PBR Permit for application of pesticides (general permit).
EC - Drinking Water	Fort Belvoir North Area (BNA) Waterworks	6059455	VA Department of Health Waterworks (drinking water) permit for consumption of drinking water at BNA.
EC - Drinking Water	Fort Belvoir Woodlawn Waterworks	6059460	VA Department of Health Waterworks (drinking water) permit for consumption of drinking water at Woodlawn.
EC - Air	Stationary Source Permit to Construct and Operate - Mark Center	DEQ # NRO-224-10	Stationary Source Permit for the Washington Headquarters Service (Mark Center) in Alexandria, VA.
EC - Air	Stationary Source Permit to Construct and Operate - EPG/NGA	DEQ # NRO-113-008	Stationary Source Permit for the National Geospatial-Intelligence Agency (NGA on old EPG area) in Belvoir North Area.

3510-1X: Existing Environmental Permits

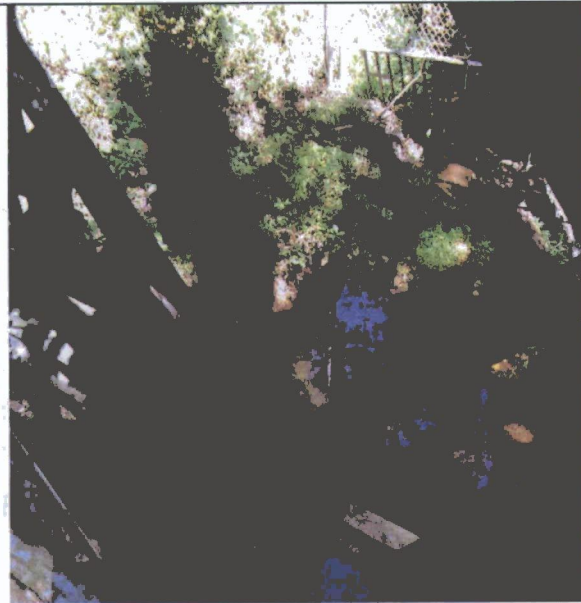
Program Area	Permit	Permit Number	Notes
EC - Air	Stationary Source to Modify and Operate	DEQ # NRO-041-11	Stationary Source Permit for Fort Belvoir, new source review permit.
EC - Air	Stationary Source Permit to Construct and Operate	DEQ # NRO-280-08	Fort Belvoir Dual-Phase Vapor Extraction System (Building 1124).
EC - Air	Stationary Source Permit to Construct and Operate	DEQ # NVRO-191-06	Fort Belvoir Soil Vapor Extraction System (Building 1197).
EC - Air	Title V Operating Permit	DEQ # NVRO-705-50	Fort Belvoir installation air permit.
EC - Air	Stationary Source Permit to Construct and Operate	No Associated Number	Fort Belvoir Rivanna Station.
EC - Petroleum	General Permit Regulation for Discharges From Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests	VAG830400	This VADEQ General permit is for discharges from a petroleum contaminated site from a new remediation system (dual-phase extraction system) at Building 2291 (former Buildings 2209/2217). Monitoring requirements are in compliance with the permit.
EC - Petroleum	General Permit Regulation for Discharges From Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests	VAG830206	This VADEQ General permit is for discharges from a petroleum contaminated site from a new remediation system (dual-phase extraction system) at building 1124. Monitoring requirements are in compliance with the permit.

3510-1X: Existing Environmental Permits

Program Area	Permit	Permit Number	Notes
EC - Petroleum	General Permit Regulation for Discharges From Petroleum Contaminated Sites, Groundwater Remediation and Hydrostatic Tests	VAG830091	This VADEQ General permit is for discharges from a petroleum contaminated site from a new remediation system (dual-phase extraction system) at Building 3161. Monitoring requirements are in compliance with the permit.
EC - Hazardous Waste	Hazardous Waste Storage Permit (Building 1490)	VA7213720082	VADEQ one year long term hazardous waste storage site at Building 1490.
EC - Landfills	Permit-by-Rule (PBR) Landfill Permit	PBR # 164	VADEQ PBR Permit for DeWitt Steam Sterilizer Solid Waste Permit.
EC - Landfills	Permit-by-Rule (PBR) Landfill Permit	PBR # 490	VADEQ PBR Permit for Theote Road Closed Landfill Solid Waste Permit.
EC - Landfills	Permit-by-Rule (PBR) Landfill Permit	PBR # 308	VADEQ PBR Permit for Cullum Woods Closed Landfill.



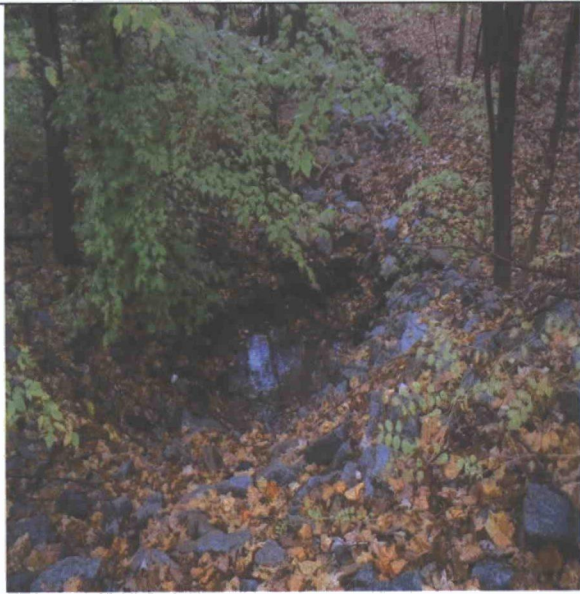
Outfall: 001 **Area:** Davison Army Airfield (North)
Treatment: None
Receiving Stream: Accotink Creek, Unnamed Tributary (UT)
Stream Code: 1aACO **River Mile:** 4.74
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 43' 10.76" **Longitude:** -77° 11' 27.12"



Outfall: 002 **Area:** Davison Army Airfield (East)
Treatment: None
Receiving Stream: Accotink Creek, UT
Stream Code: 1aXNR **River Mile:** 0.02
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 43' 05.85" **Longitude:** -77° 10' 40.05"



Outfall: 003 **Area:** Davison Army Airfield Airfield (South)
Treatment: None
Receiving Stream: Accotink Creek, UT
Stream Code: 1aXNO **River Mile:** 0.13
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 42' 37.31" **Longitude:** -77° 10' 14.33"



Outfall: 004 **Area:** Belvoir Training Area
Treatment: None
Receiving Stream: Accotink Bay, UT
Stream Code: 1aXNN **River Mile:** 0.26
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 42' 26.22" **Longitude:** -77° 10' 20.01"



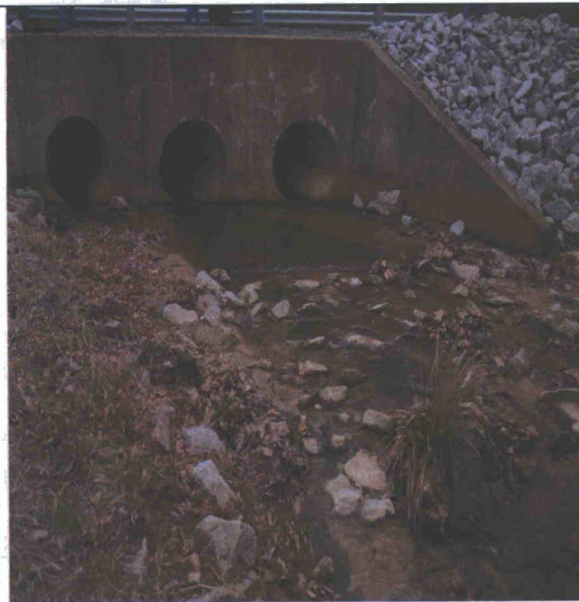
Outfall: 005 **Area:** Building 1495 (HazMART)
Treatment: None
Receiving Stream: Accotink Bay, UT
Stream Code: 1aXMV **River Mile:** 0.14
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 42' 05.71" **Longitude:** -77° 09' 15.59"



Outfall: 006 **Area:** National Guard Motor Pool
Treatment: None
Receiving Stream: Gunston Cove, UT
Stream Code: 1aXNH **River Mile:** 1.00
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 41' 26.97" **Longitude:** -77° 08' 43.19"



Outfall: 007 **Area:** 21st Street Waste Facility
Treatment: None
Receiving Stream: Gunston Cove, UT
Stream Code: 1aXMZ **River Mile:** 0.55
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 41' 02.68" **Longitude:** -77° 08' 29.01"



Outfall: 008 **Area:** Aerospace Data Facility - East
Treatment: None
Receiving Stream: Dogue Creek, UT
Stream Code: 1aXNM **River Mile:** 0.09
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 44' 17.21" **Longitude:** -77° 09' 14.94"



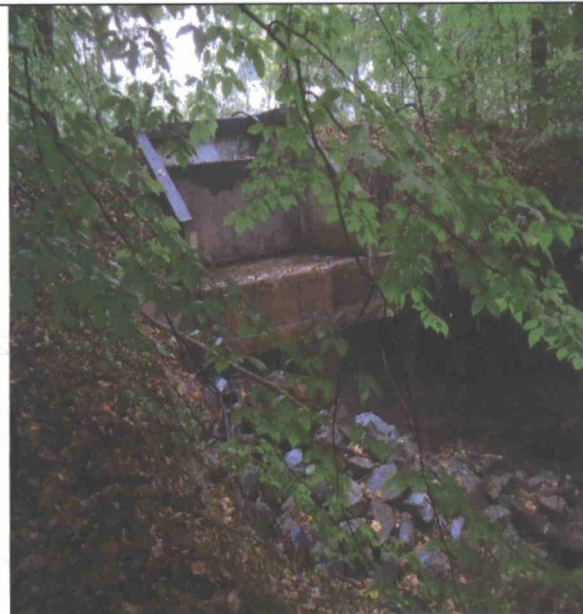
Outfall: 009 **Area:** Golf Course (Swank/Snyder)
Treatment: None
Receiving Stream: Accotink Creek, UT
Stream Code: 1aXNQ **River Mile:** 1.09
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 43' 55.55" **Longitude:** -77° 10' 03.13"



Outfall: 010 **Area:** 249th Prime Power Motor Pool (Meade Rd.)
Treatment: None
Receiving Stream: Accotink Bay, UT
Stream Code: 1aXND **River Mile:** 0.7
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 42' 40.27" **Longitude:** -77°08' 56.28"

No Photo Available

Outfall: 011 **Area:** 12th Aviation Motor Pool
Treatment: None
Receiving Stream: Accotink Bay, UT
Stream Code: 1aXND **River Mile:** 0.43
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 42' 36.22" **Longitude:** -77° 09' 12.40"



Outfall: 012 **Area:** Mosby Center
Treatment: None
Receiving Stream: Accotink Creek, UT
Stream Code: 1aXNP **River Mile:** 0.05
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 42' 57.36" **Longitude:** -77° 10' 03.94"





Outfall: 013 **Area:** Arby's / AAFES Station
Treatment: None
Receiving Stream: Mason Run, UT
Stream Code: 1aXNG **River Mile:** 0.19
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 43' 13.11" **Longitude:** -77° 09' 07.06"





Outfall: 014 **Area:** AAFES Station
Treatment: None
Receiving Stream: Mason Run, UT
Stream Code: 1aXNE **River Mile:** 0.9
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 43' 16.30" **Longitude:** -77° 09' 11.48"





Outfall: 015 **Area:** 16th Street Storage Area
Treatment: None
Receiving Stream: Accotink Bay, UT
Stream Code: 1aXMX **River Mile:** 0.61
Drainage Area at Outfall: <0.5 square miles
Stream Basin: Potomac River
Sub Basin: Potomac River
Section: 7 **Stream Class:** III
Special Standards: b
Waterbody ID: VAN-A15R
Latitude: 38° 41' 36.31" **Longitude:** -77° 08' 46.81"

	<p>Outfall: 016 Area: Marina</p> <p>Treatment: None</p> <p>Receiving Stream: Dogue Creek</p> <p>Stream Code: 1aDOU River Mile: 1.35</p> <p>Drainage Area at Outfall: Tidal</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 6 Stream Class: II</p> <p>Special Standards: b, y</p> <p>Waterbody ID: VAN-A15E</p> <p>Latitude: 38° 42' 24.27" Longitude: -77° 07' 48.92"</p>
	<p>Outfall: 017 Area: Building 1809 – Recycling Center and Compost Yard</p> <p>Treatment: None</p> <p>Receiving Stream: Accotink Bay, UT</p> <p>Stream Code: 1aXMW River Mile: 0.72</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 41' 58.19" Longitude: -77° 08' 52.86"</p>
<p>No Photo Available</p>	<p>Outfall: 018 Area: 300 Area (Totten Road)</p> <p>Treatment: None</p> <p>Receiving Stream: Gunston Cove, UT</p> <p>Stream Code: 1aXNB River Mile: 0.11</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 40' 56.72" Longitude: -77° 08' 10.28"</p>

No Photo Available	<p>Outfall: 019 Area: 300 Area (Bldg. 322 – General Lab)</p> <p>Treatment: None</p> <p>Receiving Stream: Gunston Cove, UT</p> <p>Stream Code: 1aXNB River Mile: 0.05</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 40' 53.92" Longitude: -77° 08' 08.51"</p>
No Photo Available	<p>Outfall: 020 Area: 300 Area (Bldg. 324 – Lab and Storage)</p> <p>Treatment: None</p> <p>Receiving Stream: Gunston Cove, UT</p> <p>Stream Code: 1aXNA River Mile: 0.35</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 40' 45.92" Longitude: -77° 08' 09.29"</p>
No Photo Available	<p>Outfall: 021 Area: 300 Area (Bldg. 305 – Night Vision)</p> <p>Treatment: None</p> <p>Receiving Stream: Gunston Cove, UT</p> <p>Stream Code: 1aXNA River Mile: 0.2</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 40' 38.71" Longitude: -77° 08' 13.46"</p>

<p>No Photo Available</p>	<p>Outfall: 022 Area: 300 Area (Marina)</p> <p>Treatment: None</p> <p>Receiving Stream: Gunston Cove</p> <p>Stream Code: 1aPOH River Mile: 0.78</p> <p>Drainage Area at Outfall: Tidal</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 6 Stream Class: II</p> <p>Special Standards: b, y</p> <p>Waterbody ID: VAN-A15E</p> <p>Latitude: 38° 40' 28.17" Longitude: -77° 08' 25.95"</p>
	<p>Outfall: 023 Area: Building 1497 Warehouses</p> <p>Treatment: None</p> <p>Receiving Stream: Accotink Bay, UT</p> <p>Stream Code: 1aXMV River Mile: 0.33</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 42' 07.89" Longitude: -77° 09' 09.56"</p>
	<p>Outfall: 024 Area: Aerospace Data Facility - East</p> <p>Treatment: None</p> <p>Receiving Stream: Dogue Creek, UT</p> <p>Stream Code: 1aXNK River Mile: 0.83</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Stream Code: 7 River Mile: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 44' 08.47" Longitude: -77° 09' 21.80"</p>

<p>No Photo Available</p>	<p>Outfall: 025 Area: Mead Road Contractor Lot</p> <p>Treatment: None</p> <p>Receiving Stream: Mason Run</p> <p>Stream Code: 1aMSN River Mile: 0.71</p> <p>Drainage Area at Outfall: 0.9 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 42' 53.01" Longitude: -77° 09' 29.41"</p>
	<p>Outfall: 026 Area: A08 and A09 (Markham School)</p> <p>Treatment: None</p> <p>Receiving Stream: Dogue Creek, UT</p> <p>Stream Code: 1aXNC River Mile: 0.15</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 42' 05.32" Longitude: -77° 07' 55.52"</p>
	<p>Outfall: 027 Area: A02 (Theote Landfill)</p> <p>Treatment: None</p> <p>Receiving Stream: Accotink Bay, UT</p> <p>Stream Code: 1aXMY River Mile: 0.35</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 41' 16.94" Longitude: -77°09' 01.05"</p>

No Photo Available	<p>Outfall: 028 Area: A06 (Building 2310 Landfill)</p> <p>Treatment: None</p> <p>Receiving Stream: Dogue Creek, UT</p> <p>Stream Code: 1aXNI River Mile: 1.03</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 43' 30.18" Longitude: -77° 08' 46.85"</p>
No Photo Available	<p>Outfall: 029 Area: A07 and A25 (Mulligan Road Landfill)</p> <p>Treatment: None</p> <p>Receiving Stream: Dogue Creek, UT</p> <p>Stream Code: 1aXNJ River Mile: 0.49</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 43' 42.42" Longitude: -77° 08' 24.98"</p>
No Photo Available	<p>Outfall: 030 Area: A26 (Pohick Landfill)</p> <p>Treatment: None</p> <p>Receiving Stream: Accotink Bay, UT</p> <p>Stream Code: 1aXMW River Mile: 0.3</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 41' 47.17" Longitude: -77° 09' 12.20"</p>

No Photo Available	<p>Outfall: 031 Area: NGA Area Pond</p> <p>Treatment: None</p> <p>Receiving Stream: Accotink Creek, UT</p> <p>Stream Code: 1aXNT River Mile: 0.08</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 45' 12.17" Longitude: -77° 11' 54.37"</p>
No Photo Available	<p>Outfall: 032 Area: NGA Area Pond 8</p> <p>Treatment: None</p> <p>Receiving Stream: Accotink Creek, UT</p> <p>Stream Code: 1aXNS River Mile: 0.27</p> <p>Drainage Area at Outfall: <0.5 square miles</p> <p>Stream Basin: Potomac River</p> <p>Sub Basin: Potomac River</p> <p>Section: 7 Stream Class: III</p> <p>Special Standards: b</p> <p>Waterbody ID: VAN-A15R</p> <p>Latitude: 38° 44' 57.16" Longitude: -77° 11' 44.24"</p>

NPDES PERMIT RATING WORK SHEET

VPDES NO. : VA0092771

- ☒ Regular Addition
☐ Discretionary Addition
☐ Score change, but no status Change
☐ Deletion

Facility Name: U.S. Army Garrison – Fort Belvoir

City / County: Fort Belvoir / Fairfax County

Receiving Water: Accotink Bay, UT; Accotink Creek, UT; Dogue Creek, UT; Gunston Cove, UT; Mason Run, UT; Mason Run / Dogue Creek; Gunston Cove

Waterbody ID: VAN-A15R / VAN-A15E

Is this facility a steam electric power plant (sic =4911) with one or more of the following characteristics?

1. Power output 500 MW or greater (not using a cooling pond/lake)
 2. A nuclear power Plant
 3. Cooling water discharge greater than 25% of the receiving stream's 7Q10 flow rater

Is this permit for a municipal separate storm sewer serving a population greater than 100,000?

- ☐ YES; score is 700 (stop here)
☒ NO; (continue)

☐ Yes; score is 600 (stop here) ☒ NO; (continue)

FACTOR 1: Toxic Pollutant Potential

PCS SIC Code: _____ Primary Sic Code: 9711 Other Sic Codes: _____
 Industrial Subcategory Code: 000 (Code 000 if no subcategory)

Determine the Toxicity potential from Appendix A. Be sure to use the TOTAL toxicity potential column and check one)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input checked="" type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	15	<input type="checkbox"/> 7.	7	35
<input type="checkbox"/> 1.	1	5	<input type="checkbox"/> 4.	4	20	<input type="checkbox"/> 8.	8	40
<input type="checkbox"/> 2.	2	10	<input type="checkbox"/> 5.	5	25	<input type="checkbox"/> 9.	9	45
			<input type="checkbox"/> 6.	6	30	<input type="checkbox"/> 10.	10	50

Code Number Checked: 0

Total Points Factor 1: 0

FACTOR 2: Flow/Stream Flow Volume (Complete either Section A or Section B; check only one)

Section A – Wastewater Flow Only considered

Wastewater Type (see Instructions)	Code	Points
Type I: Flow < 5 MGD	<input type="checkbox"/> 11	0
Flow 5 to 10 MGD	<input type="checkbox"/> 12	10
Flow > 10 to 50 MGD	<input type="checkbox"/> 13	20
Flow > 50 MGD	<input type="checkbox"/> 14	30
Type II: Flow < 1 MGD	<input type="checkbox"/> 21	10
Flow 1 to 5 MGD	<input type="checkbox"/> 22	20
Flow > 5 to 10 MGD	<input type="checkbox"/> 23	30
Flow > 10 MGD	<input type="checkbox"/> 24	50
Type III: Flow < 1 MGD	<input checked="" type="checkbox"/> 31	0
Flow 1 to 5 MGD	<input type="checkbox"/> 32	10
Flow > 5 to 10 MGD	<input type="checkbox"/> 33	20
Flow > 10 MGD	<input type="checkbox"/> 34	30

Section B – Wastewater and Stream Flow Considered

Wastewater Type (see Instructions)	Percent of Instream Wastewater Concentration at Receiving Stream Low Flow	Code	Points
Type I/III:	< 10 %	<input type="checkbox"/> 41	0
	10 % to < 50 %	<input type="checkbox"/> 42	10
	> 50 %	<input type="checkbox"/> 43	20
Type II:	< 10 %	<input type="checkbox"/> 51	0
	10 % to < 50 %	<input type="checkbox"/> 52	20
	> 50 %	<input type="checkbox"/> 53	30

Code Checked from Section A or B: 31

Total Points Factor 2: 0

NPDES PERMIT RATING WORK SHEET

FACTOR 3: Conventional Pollutants

(only when limited by the permit)

A. Oxygen Demanding Pollutants: (check one) ☐ BOD ☐ COD ☒ Other: Not Applicable (NA)

Permit Limits: (check one)

- ☐ < 100 lbs/day
☐ 100 to 1000 lbs/day
☐ > 1000 to 3000 lbs/day
☐ > 3000 lbs/day

Code	Points
1	0
2	5
3	15
4	20

Code Number Checked: NAPoints Scored: 0

B. Total Suspended Solids (TSS)

Permit Limits: (check one)

- ☐ < 100 lbs/day
☐ 100 to 1000 lbs/day
☐ > 1000 to 5000 lbs/day
☐ > 5000 lbs/day

Code	Points
1	0
2	5
3	15
4	20

Code Number Checked: NAPoints Scored: 0

C. Nitrogen Pollutants: (check one)

☐ Ammonia ☐ Other: _____

Permit Limits: (check one)

- Nitrogen Equivalent*
☐ < 300 lbs/day
☐ 300 to 1000 lbs/day
☐ > 1000 to 3000 lbs/day
☐ > 3000 lbs/day

Code	Points
1	0
2	5
3	15
4	20

Code Number Checked: NAPoints Scored: 0Total Points Factor 3: 0**FACTOR 4: Public Health Impact**

Is there a public drinking water supply located within 50 miles downstream of the effluent discharge (this include any body of water to which the receiving water is a tributary)? A public drinking water supply may include infiltration galleries, or other methods of conveyance that ultimately get water from the above reference supply.

☐ YES; (If yes, check toxicity potential number below)☒ NO; (If no, go to Factor 5)

Determine the *Human Health* potential from Appendix A. Use the same SIC doe and subcategory reference as in Factor 1. (Be sure to use the *Human Health* toxicity group column – check one below)

Toxicity Group	Code	Points	Toxicity Group	Code	Points	Toxicity Group	Code	Points
<input type="checkbox"/> No process waste streams	0	0	<input type="checkbox"/> 3.	3	0	<input type="checkbox"/> 7.	7	15
<input type="checkbox"/> 1.	1	0	<input type="checkbox"/> 4.	4	0	<input type="checkbox"/> 8.	8	20
<input type="checkbox"/> 2.	2	0	<input type="checkbox"/> 5.	5	5	<input type="checkbox"/> 9.	9	25
			<input type="checkbox"/> 6.	6	10	<input type="checkbox"/> 10.	10	30

Code Number Checked: NATotal Points Factor 4: 0

NPDES PERMIT RATING WORK SHEET

FACTOR 5: Water Quality Factors

- A. Is (or will) one or more of the effluent discharge limits based on water quality factors of the receiving stream (rather than technology-based federal effluent guidelines, or technology-based state effluent guidelines), or has a wasteload allocation been to the discharge

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

- B. Is the receiving water in compliance with applicable water quality standards for pollutants that are water quality limited in the permit?

	Code	Points
<input checked="" type="checkbox"/> YES	1	0
<input type="checkbox"/> NO	2	5

- C. Does the effluent discharged from this facility exhibit the reasonable potential to violate water quality standards due to whole effluent toxicity?

	Code	Points
<input type="checkbox"/> YES	1	10
<input checked="" type="checkbox"/> NO	2	0

Code Number Checked: A 2 + B 1 + C 2
 Points Factor 5: A 0 + B 0 + C 0 = 0

FACTOR 6: Proximity to Near Coastal Waters

- A. Base Score: Enter flow code here (from factor 2) 31

Check appropriate facility HPRI code (from PCS):

Enter the multiplication factor that corresponds to the flow code: 0.00

HPRI#	Code	HPRI Score	Flow Code	Multiplication Factor
<input type="checkbox"/> 1	1	20	11, 31, or 41	0.00
<input type="checkbox"/> 2	2	0	12, 32, or 42	0.05
<input checked="" type="checkbox"/> 3	3	30	13, 33, or 43	0.10
<input type="checkbox"/> 4	4	0	14 or 34	0.15
<input type="checkbox"/> 5	5	20	21 or 51	0.10
			22 or 52	0.30
			23 or 53	0.60
			24	1.00

HPRI code checked : 3

Base Score (HPRI Score): 30 X (Multiplication Factor) 0.00 = 0

- B. Additional Points – NEP Program

For a facility that has an HPRI code of 3, does the facility discharge to one of the estuaries enrolled in the National Estuary Protection (NEP) program (see instructions) or the Chesapeake Bay?

	Code	Points
<input checked="" type="checkbox"/> 1	1	10
<input type="checkbox"/> 2	2	0

- C. Additional Points – Great Lakes Area of Concern

For a facility that has an HPRI code of 5, does the facility discharge any of the pollutants of concern into one of the Great Lakes' 31 areas of concern (see instructions)?

	Code	Points
<input type="checkbox"/> 1	1	10
<input checked="" type="checkbox"/> 2	2	0

Code Number Checked: A 3 + B 1 + C 2
 Points Factor 6: A 0 + B 10 + C 0 = 10

NPDES PERMIT RATING WORK SHEET

SCORE SUMMARY

<u>Factor</u>	<u>Description</u>	<u>Total Points</u>
1	Toxic Pollutant Potential	0
2	Flows / Streamflow Volume	0
3	Conventional Pollutants	0
4	Public Health Impacts	0
5	Water Quality Factors	0
6	Proximity to Near Coastal Waters	10
	TOTAL (Factors 1 through 6)	10

S1. Is the total score equal to or greater than 80 ☐ YES; (Facility is a Major) ☒ NO

S2. If the answer to the above questions is no, would you like this facility to be discretionary major?

☐ NO

☒ YES; (Add 500 points to the above score and provide reason below:

Reason: The permit addresses roughly 250 outfalls located on the Fort Belvoir installation.

NEW SCORE : 510
OLD SCORE : NA

Permit Reviewer's Name : Susan Mackert
Phone Number: (703) 583-3853
Date: July 7, 2015

Table 3510-2F-1VB: Significant Materials

Program Area	Material Treated/ Stored/ Disposed	Location of Storage/ Materials Loading and Access Areas	Substance Applied?	Fort Belvoir Program/ Permit Contact	Associated Outfall	Method of Treatment, Storage, or Disposal
EC - Petroleum	No 2 heating oil	3153	No	Jaroslav Sebek	0003	building 3153 has a 550-Gallon Aboveground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	gasoline	3162	No	Jaroslav Sebek	0003	building 3162 has a 500-Gallon Aboveground tank of gasoline used for Dispensing
EC - Petroleum	diesel	3162	No	Jaroslav Sebek	0003	building 3162 has a 500-Gallon Aboveground tank of diesel used for Dispensing
EC - Petroleum	JP-8	3162	No	Jaroslav Sebek	0003	building 3162 has a 13000-Gallon Underground tank of JP-8 used for Dispensing
EC - Petroleum	JP-8	3162	No	Jaroslav Sebek	0003	building 3162 has a 13000-Gallon Underground tank of JP-8 used for Dispensing
EC - Petroleum	diesel	3165	No	Jaroslav Sebek	0003	building 3165 has a 500-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	No 2 heating oil	193	No	Jaroslav Sebek	0005	building 193 has a 1000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	diesel	1421	No	Jaroslav Sebek	0005	building 1421 has a 250-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	No 2 heating oil	1495	No	Jaroslav Sebek	0005	building 1495 has a 2000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	diesel	606	No	Jaroslav Sebek	0007	building 606 has a 250-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	diesel	2827	No	Jaroslav Sebek	0008	building 2827 has a 2000-Gallon Underground tank of diesel used for Heat/Hot Water
EC - Petroleum	diesel	2855	No	Jaroslav Sebek	0008	building 2855 has a 1000-Gallon Underground tank of diesel used for Heat/Hot Water
EC - Petroleum	diesel	2851A	No	Jaroslav Sebek	0008	building 2851A has a 50000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	diesel	2851B	No	Jaroslav Sebek	0008	building 2851B has a 50000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	diesel	2851C	No	Jaroslav Sebek	0008	building 2851C has a 50000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	diesel	2851D	No	Jaroslav Sebek	0008	building 2851D has a 50000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	diesel	2851E	No	Jaroslav Sebek	0008	building 2851E has a 50000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	diesel	2851F	No	Jaroslav Sebek	0008	building 2851F has a 50000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	used oil	2990	No	Jaroslav Sebek	0009	building 2990 has a 275-Gallon Aboveground tank of used oil used for Waste Accumulation
EC - Petroleum	No 2 heating oil	2990	No	Jaroslav Sebek	0009	building 2990 has a 2000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	diesel	2991	No	Jaroslav Sebek	0009	building 2991 has a 500-Gallon Aboveground tank of diesel used for Dispensing
EC - Petroleum	gasoline	2991	No	Jaroslav Sebek	0009	building 2991 has a 500-Gallon Aboveground tank of gasoline used for Dispensing
EC - Petroleum	used oil	2991	No	Jaroslav Sebek	0009	building 2991 has a 275-Gallon Aboveground tank of used oil used for Waste Accumulation

Table 3510-2F-1VB: Significant Materials

Program Area	Material Treated/ Stored/ Disposed	Location of Storage/ Materials Loading and Access Areas	Substance Applied?	Fort Belvoir Program/ Permit Contact	Associated Outfall	Method of Treatment, Storage, or Disposal
EC - Petroleum	gasoline	2993	No	Jaroslav Sebek	0009	building 2993 has a 500-Gallon Aboveground tank of gasoline used for Dispensing
EC - Petroleum	diesel	2993	No	Jaroslav Sebek	0009	building 2993 has a 500-Gallon Aboveground tank of diesel used for Dispensing
EC - Petroleum	used oil	1950	No	Jaroslav Sebek	0011	building 1950 has a 250-Gallon Aboveground tank of used oil used for Waste Accumulation
EC - Petroleum	No 2 heating oil	1950	No	Jaroslav Sebek	0011	building 1950 has a 3000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	2473	No	Jaroslav Sebek	0012	building 2473 has a 5000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	diesel	193	No	Jaroslav Sebek	0015	building 193 has a 500-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	gasoline	1114	No	Jaroslav Sebek	0015	building 1114 has a 6000-Gallon Aboveground tank of gasoline used for Dispensing
Base-Ops	Alpine RF-11	1114	Yes	Antonio Parisi	0015	building 1113 has a 5,000-Gallon Aboveground tank of Alpine RF-11 used for Deicing
EC - Petroleum	kerosene	1124	No	Jaroslav Sebek	0015	building 1124 has a 250-Gallon Aboveground tank of kerosene used for Dispensing
EC - Petroleum	used oil	1124	No	Jaroslav Sebek	0015	building 1124 has a 12000-Gallon Underground tank of used oil used for Waste Accumulation
EC - Petroleum	gasoline	1124	No	Jaroslav Sebek	0015	building 1124 has a 30000-Gallon Underground tank of gasoline used for Dispensing
EC - Petroleum	diesel	1124	No	Jaroslav Sebek	0015	building 1124 has a 30000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	No 2 heating oil	1126	No	Jaroslav Sebek	0015	building 1126 has a 500-Gallon Aboveground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	1139	No	Jaroslav Sebek	0015	building 1139 has a 275-Gallon Aboveground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	1141	No	Jaroslav Sebek	0015	building 1141 has a 275-Gallon Aboveground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	1142	No	Jaroslav Sebek	0015	building 1142 has a 275-Gallon Aboveground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	1143	No	Jaroslav Sebek	0015	building 1143 has a 1000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	1143	No	Jaroslav Sebek	0015	building 1143 has a 1000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	No 2 heating oil	1156	No	Jaroslav Sebek	0015	building 1156 has a 275-Gallon Aboveground tank of No 2 heating oil used for Heat/Hot Water
EC - Petroleum	Diesel	1157	No	Jaroslav Sebek	0015	building 1157 has a 275-Gallon Aboveground tank of Diesel used for Heat/Hot Water
EC - Petroleum	gasoline	1696	No	Jaroslav Sebek	0016	building 1696 has a 500-Gallon Aboveground tank of gasoline used for Dispensing
EC - Petroleum	used oil	1696	No	Jaroslav Sebek	0016	building 1696 has a 500-Gallon Aboveground tank of used oil used for Waste Accumulation
EC - Petroleum	No 2 heating oil	1696	No	Jaroslav Sebek	0016	building 1696 has a 1000-Gallon Underground tank of No 2 heating oil used for Heat/Hot Water

Table 3510-2F-1VB: Significant Materials

Program Area	Material Treated/ Stored/ Disposed	Location of Storage/ Materials Loading and Access Areas	Substance Applied?	Fort Belvoir Program/ Permit Contact	Associated Outfall	Method of Treatment, Storage, or Disposal
EC - Petroleum	used oil	1089 (Recycling Center)	No	Jaroslav Sebek	0017	building 1089 has a 500-Gallon Aboveground tank of used oil used for Waste Accumulation
EC - Petroleum	diesel	314	No	Jaroslav Sebek	0018	building 314 has a 275-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	diesel	324	No	Jaroslav Sebek	0020	building 324 has a 1000-Gallon Aboveground tank of diesel used for Dispensing
EC - Petroleum	used oil	324	No	Jaroslav Sebek	0020	building 324 has a 250-Gallon Aboveground tank of used oil used for Waste Accumulation
EC - Petroleum	JP-8	324	No	Jaroslav Sebek	0020	building 324 has a 1000-Gallon Aboveground tank of JP-8 used for Dispensing
NR - Pesticide	Rodeo	1496	Yes	Steve Watters	0023	Rodeo is a non-selective (liquid) herbicide used to control vegetation. This herbicide is applied by the government contractor to aquatic invasive species.
NR - Pesticide	Roundup	1496	Yes	Steve Watters	0023	Roundup is a non-selective (liquid) herbicide used to control vegetation. This herbicide is applied by the government contractor to fence lines, sidewalks, curbs, parking lots, road shoulders, transformer pads, etc.
NR - Pesticide	Habitat	1496	Yes	Steve Watters	0023	Habitat is a non-selective (liquid) herbicide used to control vegetation. This herbicide is applied by the government contractor to aquatic invasive species.
NR - Pesticide	Bti	1496	Yes	Steve Watters	0023	Bti is a mosquito larvicide (solid) that is used in the around storm-water areas to control the propagation of mosquitos. This larvicide is applied by an outside contractor
NR - Pesticide	Altoside XR	1496	Yes	Steve Watters	0023	Altoside is a mosquito larvicide (solid) that is used in areas NOT surrounded by storm-water, to control the mosquitos. This larvicide is applied by an outside contractor.
EC - Petroleum	diesel	2800	No	Jaroslav Sebek	0024	building 2800 has a 15000-Gallon Underground tank of diesel used for Heat/Hot Water
EC - Petroleum	diesel	2800	No	Jaroslav Sebek	0024	building 2800 has a 6000-Gallon Underground tank of diesel used for Heat/Hot Water
EC - Petroleum	diesel	2802	No	Jaroslav Sebek	0024	building 2802 has a 25000-Gallon Underground tank of diesel used for Dispensing
EC - Petroleum	diesel	5104	No	Jaroslav Sebek	0032	building 5104 has a 10000-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	diesel	5104	No	Jaroslav Sebek	0032	building 5104 has a 30000-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	diesel	5104	No	Jaroslav Sebek	0032	building 5104 has a 30000-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	diesel	5104	No	Jaroslav Sebek	0032	building 5104 has a 30000-Gallon Aboveground tank of diesel used for Emergency Generator

Table 3510-2F-1VB: Significant Materials

Program Area	Material Treated/ Stored/ Disposed	Location of Storage/ Materials Loading and Access Areas	Substance Applied?	Fort Belvoir Program/ Permit Contact	Associated Outfall	Method of Treatment, Storage, or Disposal
EC - Petroleum	diesel	5104	No	Jaroslav Sebek	0032	building 5104 has a 30000-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	diesel	5104	No	Jaroslav Sebek	0032	building 5104 has a 30000-Gallon Aboveground tank of diesel used for Emergency Generator
EC - Petroleum	gasoline	2304	No	Jaroslav Sebek	0013/0014	building 2304 has a 12000-Gallon Underground tank of gasoline used for Dispensing
EC - Petroleum	gasoline	2304	No	Jaroslav Sebek	0013/0014	building 2304 has a 12000-Gallon Underground tank of gasoline used for Dispensing
EC - Petroleum	gasoline	2304	No	Jaroslav Sebek	0013/0014	building 2304 has a 12000-Gallon Underground tank of gasoline used for Dispensing
EC - Petroleum	gasoline	2304	No	Jaroslav Sebek	0013/0014	building 2304 has a 12000-Gallon Underground tank of gasoline used for Dispensing

Table 3510-2F-IVB-1: Generalized Significant Materials

Material Treated/Stored/ Disposed	Form	Previous Method of Treatment/Storage/ Disposal	Management Practice to Minimize Contact with Stormwater
Waste Oils	Liquid	Outdoor AST/drums	Stored under cover/in sealed drums; corroded ASTs replaced.
Universal Waste Batteries	Solid	Outdoor storage	Proper Procedure Training; storage indoors/under cover with proper labeling.
Motor Gasoline (MOGAS), Diesel, JP-8, Lubricant Oils, Petroleum	Liquid	AST/UST/drums	Stored in sealed tanks/drums; utilized under protective covers; AST replacement.
Fertilizer	Solid	Outdoor storage, open containers	Integrated Pest Management Program; materials stored under cover.
Pesticides	Liquid/Solid	Outdoor storage, open containers	Performed via contract; per-day usage, excess disposed offsite at contractor expense.
Hazardous Waste	Solid/Liquid	Outdoor storage	Stored under cover/in sealed drums; performing routine pickup and disposal of garbage and waste materials; regular inspections of sites.
Removed Runway Rubber	Solid	Outdoor storage	Closed/covered storage/disposable container.
Detergents	Liquid	Discharging into storm drains	Washing is conducted in specified washing areas with proper discharge.
Metallic Waste	Solid	N/A	Performing routine pickup and disposal of garbage and waste materials.
Fire Retardant Chemicals	Liquid	N/A	Indoor storage.
Salt	Solid	Salt domes, outdoor stock piles	Salt dome buildings, indoor storage, covered storage.
Deicers	Liquid	N/A	Closed/covered storage/disposable container.

Table 3510-2F-IV-B-2: Material Loading/Access Areas

Building Number	Area Designation	Description of Activity
1124	16 th Street Fueling Area	Offloading and storage of various fuels and oil products.
1197	12 th Street Service Station	Offloading and storage of various fuels and oil products.
1495	HAZMART Building	Offloading and storage of hazardous waste.
1496	Pest Shop	Offloading and storage of various herbicides, pesticides, and related chemicals.
3162	DAAF Fuel Island	Offloading and storage of various fuels and oil products.

Table 3510-2F-IV-B-3: Herbicides, Pesticides, Soil Conditioners, and Fertilizers

Due to the size and nature of the installation, Fort Belvoir uses herbicides, pesticides, soil conditioners, and fertilizers infrequently as needed in multiple areas throughout the installation. The usage of these chemicals is performed by installation contractors under the auspices of Fort Belvoir. Materials are brought onsite as needed, with wastes disposed of offsite by said contractors.

Material	Location	Manner	Frequency
Herbicides	Varies/ installation-wide	Spray and solid/varies	As needed.
Pesticides	Varies/ installation-wide	Spray and solid/varies	As needed.
Soil Conditioners	Varies/ installation-wide	Spray and solid/varies	As needed.
Fertilizers	Varies/ installation-wide	Spray and solid/varies	As needed.

Outfall 001
Davison Army Airfield - North

Substantially Identical Outfalls:
4942

Discharge Location:
Accotink Creek, Unnamed Tributary

Drainage Area Discussion:

Davison Army Airfield provides aviation support for the Military District of Washington. The Airfield is home to various Active Duty and National Guard commands and agencies providing fixed and rotary wing air transport as well as associated support activities such as maintenance.

Outfall 001 and the associated drainage area were observed by staff during a site visit conducted on September 17, 2013. The outfall is located near the end of a runway away from the flight line and receives stormwater runoff from the runway and a perimeter road. Stormwater enters a heavily vegetated drainage swale adjacent to the perimeter road with flow being routed under the perimeter road for discharge via Outfall 001. According to the permit application, the drainage area is comprised of approximately 5.1 acres with 0.2 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 5 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4581, 4959, 4961, 5541, 7538, and 7542. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 001 and its substantially identical outfalls is that associated with air transportation activities (SIC Code 4581). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4581 (Air Transportation)

Discharges from air transportation facilities, specifically SIC Codes 4512 – 4581, are covered under Sector S – Air Transportation, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include vehicle maintenance (vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, and/or deicing or anti-icing operations. Because the stormwater discharges from Outfall 001 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector S of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

An additional concern associated with the air transportation sector is that associated with deicing. For purposes of the SWGP, deicing means procedures or practices to remove or prevent any accumulation of snow or ice on an aircraft or airfield pavement.

Given the majority of aircraft at the airfield is rotary wing, minimal aircraft deicing takes place using a Propylene Glycol based deicing product (Safe Temp® ES Plus). On average one to two aircraft are deiced no more than five times during the "deicing season" using forty gallons or less of deicing fluid. Based on information provided by the installation subsequent to the submittal of the application, Outfall 001 does not receive stormwater runoff from deicing activities. As such, it is staff's professional judgement that monitoring for Propylene Glycol is not warranted. The Material Safety Data Sheet for Safe Temp® ES Plus was reviewed (Attachment 5 – Appendix A) and it is staff's professional judgement that toxicity testing is not warranted because of the use of this product. See Section 22 of the Fact Sheet for discussion on propylene glycol.

The airfield does utilize a potassium acetate based formulation (Alpine RF-11) for runway deicing. When used, the product is allowed to penetrate the pavement surface to break the bond of ice and snow. The SWGP airfield pavement deicing requirements apply to existing primary airports and primary airports meeting the definition of a new source (new primary airports) with at least 1,000 annual jet departures (non-propeller aircraft) that discharge wastewater associated with airport pavement deicing comingled with stormwater to either use deicing products that do not contain urea or achieve the numeric limitations for ammonia at every discharge point. Since Davison Army Airfield is not a primary airport and a non-urea based deicing product is used, it is staff's professional judgement that monitoring for ammonia based on pavement deicing activities is not warranted. The Material Safety Data Sheet for Alpine RF-11 was reviewed (Attachment 5 – Appendix B) and it is staff's professional judgement that toxicity testing is not warranted because of the use of this product.

➤ **Secondary Industrial Activities**

SIC Code 4959 (Sanitary Services, Not Elsewhere Classified)

Activities addressed under this SIC Code include snow plowing, street sweeping, and vacuuming of airport runways. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 4961 (Steam and Air Conditioning Supply)

Activities addressed under this SIC Code include distribution of cooled air, geothermal steam production, and steam heating systems. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010.

The SIC Code, as presented in the application, is likely being applied to heating, ventilation, and air conditioning (HVAC) or refrigeration systems located within the drainage area of Outfall 001. In cases such as this, applying the monitoring requirements from the *General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons per Day or Less* (9VAC25-196) would be appropriate. As such, staff implemented monitoring requirements for Ammonia (as N), Total Residual Chlorine, Total Recoverable Copper, Total Recoverable Silver, Total Recoverable Zinc, Phosphorus and Hardness.

Subsequent to the drafting of the permit the installation provided information indicating that the steam heating system at Davison Army Airfield had been removed, demolished and replaced with a new natural gas system. This work was completed in June 2015. As such, the requirements for Ammonia (as N), Total Residual Chlorine, Total Recoverable Copper, Total Recoverable Silver, Total Recoverable Zinc, Phosphorus and Hardness based on SIC Code 4961 have been removed.

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's understanding that the facility is not engaged in the selling of gasoline, however, fuel is stored and utilized for operations at the airfield. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7538 (General Automotive Repair Shops)

Activities addressed under this SIC Code include automotive and engine repair shops. Maintenance activities are conducted under cover, however, there is potential for vehicles and aircraft awaiting service to release pollutants and therefore impact stormwater quality. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack is connected to the sanitary sewer system and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Copper, Iron, Magnesium, and Manganese.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.a). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 µg/L, the 2x acute criteria action level is 14 µg/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:**Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):**

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 001 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for dissolved copper, it is staff's professional judgement that hardness monitoring is appropriate. A semi-annual monitoring frequency is proposed.

Stormwater Monitoring Requirements: Outfall 001 (Davison Army Airfield – North)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 001 is substantially identical to Outfall 4942. Discharge data from Outfall 001 may be submitted to represent this outfall.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1.3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1.3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus	1.2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(e)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/6M = Once every six months.

1. Professional judgement

NA = Not applicable.

2. 9VAC25-151-70

NL = No limit; monitor and report.

3. 9VAC25-151-260

S.U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L; Dissolved Copper - 14µg/L

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

Metals and Total Hardness Requirements:

- e. Samples for metals and hardness shall be collected concurrently.



Photo 1. Outfall 001.



Photo 2. Drainage swale adjacent to perimeter road. Stormwater flow is in the direction of the arrow.



Photo 3. Drainage swale adjacent to perimeter road. Stormwater flow is in the direction of the arrow.



Photo 4. The drainage swales shown in Photo 2 and Photo 3 combine in this area and flow under the perimeter road to Outfall 001. Stormwater flow is in the direction of the arrow.

Outfall 002

Davison Army Airfield - East

Substantially Identical Outfalls:

4715, 4842, 4843, 4844, 4847, 4852, 4868, 4870, 4910, 4911, 4928, 4940, 4948, 4954, 4956, and 4958

Discharge Location:

Accotink Creek, Unnamed Tributary

Drainage Area Discussion:

Davison Army Airfield provides aviation support for the Military District of Washington. The Airfield is home to various Active Duty and National Guard commands and agencies providing fixed and rotary wing air transport as well as associated support activities such as maintenance.

Outfall 002 and the associated drainage area were observed by staff during a site visit conducted on September 17, 2013. The outfall does have the potential to be impacted by aircraft operations at the flight line including apron drainage and fueling. According to the permit application, the drainage area is comprised of approximately 19.1 acres with 0.5 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 10 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4581, 4953, 4959, 4961, 5541, 7538, and 7542. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 002 and its substantially identical outfalls is that associated with air transportation activities (SIC Code 4581). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ Primary Industrial Activity

SIC Code 4581 (Air Transportation)

Discharges from air transportation facilities, specifically SIC Codes 4512 – 4581, are covered under Sector S – Air Transportation, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include vehicle maintenance (vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, and/or deicing or anti-icing operations. Because the stormwater discharges from Outfall 002 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector S of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

An additional concern associated with the air transportation sector is that associated with deicing. For purposes of the SWGP, deicing means procedures or practices to remove or prevent any accumulation of snow or ice on an aircraft or airfield pavement.

Given the majority of aircraft at the airfield is rotary wing, minimal aircraft deicing takes place using a Propylene Glycol based deicing product (Safe Temp® ES Plus). On average one to two aircraft are deiced no more than five times during the "deicing season" using forty gallons or less of deicing fluid. Based on information provided by the installation subsequent to the submittal of the application, Outfall 002 has the potential to receive stormwater runoff from deicing activities. As such, it is staff's professional judgement that monitoring for Propylene Glycol be implemented. Samples shall be collected during the months of October – April within the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when a runoff event occurs and deicing activities have taken place. The Material Safety Data Sheet for Safe Temp® ES Plus was reviewed (Attachment 5 – Appendix A) and it is staff's professional judgement that toxicity testing is not warranted because of the use of this product. See Section 22 of the Fact Sheet for discussion on propylene glycol.

The airfield does utilize a potassium acetate based formulation (Alpine RF-11) for runway deicing. When used, the product is allowed to penetrate the pavement surface to break the bond of ice and snow. The SWGP airfield pavement deicing requirements apply to existing primary airports and primary airports meeting the definition of a new source (new primary airports) with at least 1,000 annual jet departures (non-propeller aircraft) that discharge wastewater associated with airport pavement deicing comingled with stormwater to either use deicing products that do not contain urea or achieve the numeric limitations for ammonia at every discharge point. Since Davison Army Airfield is not a primary airport and a non-urea based deicing product is used, it is staff's professional judgement that monitoring for ammonia based on pavement deicing activities is not warranted. The Material Safety Data Sheet for Alpine RF-11 was reviewed (Attachment 5 – Appendix B) and it is staff's professional judgement that toxicity testing is not warranted because of the use of this product.

➤ **Secondary Industrial Activities**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 002 is to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

SIC Code 4959 (Sanitary Services, Not Elsewhere Classified)

Activities addressed under this SIC Code include snow plowing, street sweeping, and vacuuming of airport runways. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 4961 (Steam and Air Conditioning Supply)

Activities addressed under this SIC Code include distribution of cooled air, geothermal steam production, and steam heating systems. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010.

The SIC Code, as presented in the application, is likely being applied to heating, ventilation, and air conditioning (HVAC) or refrigeration systems located within the drainage area of Outfall 001. In cases such as this, applying the monitoring requirements from the *General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons per Day or Less* (9VAC25-196) would be appropriate. As such, staff implemented monitoring requirements for Ammonia (as N), Total Residual Chlorine, Total Recoverable Copper, Total Recoverable Silver, Total Recoverable Zinc, Phosphorus and Hardness.

Subsequent to the drafting of the permit the installation provided information indicating that the steam heating system at Davison Army Airfield had been removed, demolished and replaced with a new natural gas system. This work was completed in June 2015. As such, the requirements for Ammonia (as N), Total Residual Chlorine, Total Recoverable Copper, Total Recoverable Silver, Total Recoverable Zinc, Phosphorus and Hardness based on SIC Code 4961 have been removed.

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's understanding that the facility is not engaged in the selling of gasoline, however, fuel is stored and utilized for operations at the airfield. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7538 (General Automotive Repair Shops)

Activities addressed under this SIC Code include automotive and engine repair shops. Maintenance activities are conducted under cover, however, there is potential for vehicles and aircraft awaiting service to release pollutants and therefore impact stormwater quality. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack is connected to the sanitary sewer system and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Iron, Magnesium, and Manganese.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 002 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Specific Conductance:

The use of Propylene Glycol for deicing and/or anti-icing represents a reasonable potential for contamination of stormwater quality as it exerts a high oxygen demand on the receiving waters. As such, monitoring for specific conductance shall be implemented with this issuance. Samples shall be collected during the months of October – April within the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when a runoff event occurs and deicing activities have taken place.

Dissolved Oxygen (DO):

The use of Propylene Glycol for deicing and/or anti-icing represents a reasonable potential for contamination of stormwater quality as it exerts a high oxygen demand on the receiving waters. As such, monitoring for DO shall be implemented with this issuance. Samples shall be collected during the months of October – April within the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when a runoff event occurs and deicing activities have taken place.

Stormwater Monitoring Requirements: Outfall 002 (Davison Army Airfield – East)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 002 is substantially identical to Outfalls 4715, 4842, 4843, 4844, 4847, 4852, 4868, 4870, 4910, 4911, 4928, 4940, 4948, 4954, 4956, and 4958. Discharge data from Outfall 002 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Propylene Glycol ^(e)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Specific Conductance ^(e)	1	NA	NA	NA	NL (µmhos/cm)	1/6M	Grab
Dissolved Oxygen (DO) ^(e)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-260

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

Deicing Requirements:

- e. Samples for propylene glycol, specific conductance, and dissolved oxygen shall be collected during the months of October - April within the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when a runoff event occurs and deicing activities have taken place.



Photo 1. Outfall 002.



Photo 2. Upstream of Outfall 002.

Outfall 003

Davison Army Airfield - South

Substantially Identical Outfalls:

4668, 4669, 4670, 4671, 4696, and 4706

Discharge Location:

Accotink Creek, Unnamed Tributary

Drainage Area Discussion:

Davison Army Airfield provides aviation support for the Military District of Washington. The Airfield is home to various Active Duty and National Guard commands and agencies providing fixed and rotary wing air transport as well as associated support activities such as maintenance.

Outfall 003 and the associated drainage area were observed by staff during a site visit conducted on September 17, 2013. The outfall does have the potential to be impacted by aircraft operations at the flight line including fueling, apron drainage, and maintenance activities taking place at the hangars. Discharges from the fire training area and fire station are routed to the sanitary sewer system and as such, have no impact on Outfall 003. According to the permit application, the drainage area is comprised of approximately 145.4 acres with 6.3 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 15 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4581, 4953, 4959, 4961, 5541, 7538, and 7542. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 003 and its substantially identical outfalls is that associated with air transportation activities (SIC Code 4581). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ Primary Industrial Activity

SIC Code 4581 (Air Transportation)

Discharges from air transportation facilities, specifically SIC Codes 4512 – 4581, are covered under Sector S – Air Transportation, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include vehicle maintenance (vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, and/or deicing or anti-icing operations. Because the stormwater discharges from Outfall 003 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector S of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

An additional concern associated with the air transportation sector is that associated with deicing. For purposes of the SWGP, deicing means procedures or practices to remove or prevent any accumulation of snow or ice on an aircraft or airfield pavement.

Given the majority of aircraft at the airfield is rotary wing, minimal aircraft deicing takes place using a Propylene Glycol based deicing product (Safe Temp® ES Plus). On average one to two aircraft are deiced no more than five times during the "deicing season" using forty gallons or less of deicing fluid. Based on information provided by the installation subsequent to the submittal of the application, Outfall 003 does not receive stormwater runoff from deicing activities. As such, it is staff's professional judgement that monitoring for Propylene Glycol is not warranted. The Material Safety Data Sheet for Safe Temp® ES Plus was reviewed (Attachment 5 – Appendix A) and it is staff's professional judgement that toxicity testing is not warranted because of the use of this product. See Section 22 of the Fact Sheet for discussion on propylene glycol.

The airfield does utilize a potassium acetate based formulation (Alpine RF-11) for runway deicing. When used, the product is allowed to penetrate the pavement surface to break the bond of ice and snow. The SWGP airfield pavement deicing requirements apply to existing primary airports and primary airports meeting the definition of a new source (new primary airports) with at least 1,000 annual jet departures (non-propeller aircraft) that discharge wastewater associated with airport pavement deicing comingled with stormwater to either use deicing products that do not contain urea or achieve the numeric limitations for ammonia at every discharge point. Since Davison Army Airfield is not a primary airport and a non-urea based deicing product is used, it is staff's professional judgement that monitoring for ammonia based on pavement deicing activities is not warranted. The Material Safety Data Sheet for Alpine RF-11 was reviewed (Attachment 5 – Appendix B) and it is staff's professional judgement that toxicity testing is not warranted because of the use of this product.

➤ **Secondary Industrial Activities**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 003 is to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

SIC Code 4959 (Sanitary Services, Not Elsewhere Classified)

Activities addressed under this SIC Code include snow plowing, street sweeping, and vacuuming of airport runways. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 4961 (Steam and Air Conditioning Supply)

Activities addressed under this SIC Code include distribution of cooled air, geothermal steam production, and steam heating systems. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010.

The SIC Code, as presented in the application, is likely being applied to heating, ventilation, and air conditioning (HVAC) or refrigeration systems located within the drainage area of Outfall 001. In cases such as this, applying the monitoring requirements from the *General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons per Day or Less* (9VAC25-196) would be appropriate. As such, staff implemented monitoring requirements for Ammonia (as N), Total Residual Chlorine, Total Recoverable Copper, Total Recoverable Silver, Total Recoverable Zinc, Phosphorus and Hardness.

Subsequent to the drafting of the permit the installation provided information indicating that the steam heating system at Davison Army Airfield had been removed, demolished and replaced with a new natural gas system. This work was completed in June 2015. As such, the requirements for Ammonia (as N), Total Residual Chlorine, Total Recoverable Copper, Total Recoverable Silver, Total Recoverable Zinc, Phosphorus and Hardness based on SIC Code 4961 have been removed.

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's understanding that the facility is not engaged in the selling of gasoline, however, fuel is stored and utilized for operations at the airfield. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7538 (General Automotive Repair Shops)

Activities addressed under this SIC Code include automotive and engine repair shops. Maintenance activities are conducted under cover, however, there is potential for vehicles and aircraft awaiting service to release pollutants and therefore impact stormwater quality. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack is connected to the sanitary sewer system and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 003 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 003 (Davison Army Airfield – South)

Average Flow Variable based on storm event.

Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 003 is substantially identical to Outfalls 4668, 4669, 4670, 4671, 4696, and 4706. Discharge data from Outfall 003 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-260

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L, TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 003.



Photo 2. Upstream of Outfall 003.

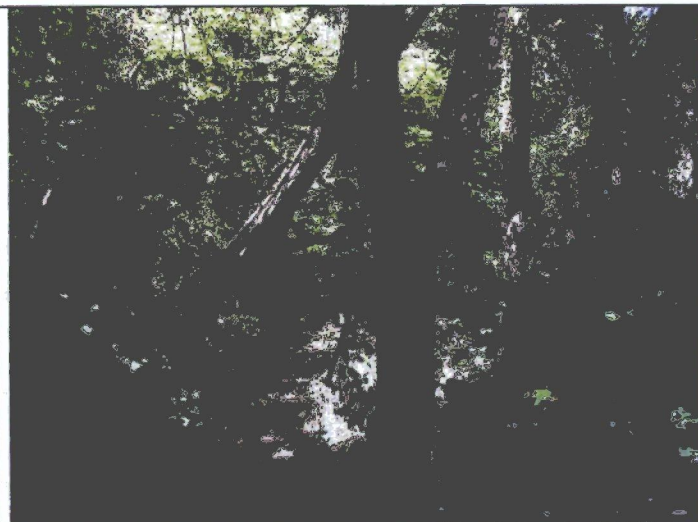


Photo 3. Downstream of Outfall 003.

Outfall 004

Belvoir Training Area

Substantially Identical Outfalls:

3302, 3992, 3993, 4430, 4432, 4434, 4435, 4442, 4444, 4446, 4450, and 4452

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

The Belvoir Training Area is associated with two closed landfills. Outfall 004 and the associated drainage area were observed by staff during a site visit conducted on October 30, 2013. According to the permit application, the drainage area is comprised of approximately 5.1 acres with none of that acreage being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 19 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. The primary industrial activity with the potential to impact stormwater quality at Outfall 004 and its substantially identical outfalls is that associated with landfills, land application sites, and open dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ Primary Industrial Activity

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 004 is to address potential stormwater contamination from an area associated with a closed landfill.

In accordance with the SWGP, landfills (including landfills in "post-closure care") that have been properly closed and capped in accordance with 9VAC20-81-160 and 9VAC20-81-170 and have no significant materials exposed to stormwater do not require this permit. Additionally, landfills closed in accordance with regulations or permits in effect prior to December 21, 1988, do not require this permit, unless significant materials are exposed to stormwater. Information provided by Fort Belvoir subsequent to the application submittal indicates the landfill associated with Outfall 004, Cullum Woods, has been closed. A review of DEQ records confirm this landfill was closed July 6, 2012. As such, it's staff's professional judgement that stormwater monitoring requirements associated with Sector L of the SWGP are not applicable.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Iron, Lead, Magnesium, and Manganese.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Lead:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.b). While a limit is not warranted, lead was noted as being present in the discharge from Outfall 004. As such, it is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 004 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 004 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 004 (Belvoir Training Area)

Average Flow. Variable based on storm event

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 004 is substantially identical to Outfalls 3302, 3992, 3993, 4430, 4432, 4434, 4435, 4442, 4444, 4446, 4450 and 4452 Discharge data from Outfall 004 may be submitted to represent these outfalls

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Lead, Dissolved ^(d)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U ; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Nutrient Requirements

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.

Metals and Total Hardness Requirements:

- d. Samples for metals and hardness shall be collected concurrently.



Photo 1. Outfall 004.



Photo 2. Closed landfill associated with Belvoir Training Area.



Photo 3. Closed landfill associated with Belvoir Training Area.

Outfall 005
HazWaste Facility (<90 day)

Substantially Identical Outfalls:
2759

Discharge Location:
Accotink Bay, Unnamed Tributary

Drainage Area Discussion: Building 1495 is a single enclosed building used as a less than 90 day hazardous and non-hazardous waste storage facility. Drainage to Outfall 005 includes flow from Building 1495 as well as the associated parking area, sidewalks, roadways and storage (in sea containers). Outfall 005 and the associated drainage area were observed by staff during a site visit conducted on October 23, 2013. The outfall does have the potential to be impacted by historical PCB contamination. According to Fort Belvoir staff, the area has been remediated. The discharge from Outfall 005 flows via a vegetated drainage swale adjacent to a road before finally discharging to an unnamed tributary to Gunston Cove. According to the permit application, the drainage area is comprised of approximately 1.0 acres with 0.2 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 25 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:
Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4955. However, the SIC Code provided in the application is not a valid SIC Code recognized by the Occupational Safety and Health Administration (OSHA). Rather SIC Code 4955 is specific to the Securities and Exchange Commission (SEC), specifically, the Division of Corporation Finance, as a basis for assigning review responsibility for a company's filings. Within the SEC framework, SEC-Specific Industry 4955 is associated with Hazardous Waste Management.

Based on site reviews conducted during the drafting of the permit, staff concurs that the primary industrial activity with the potential to impact stormwater quality at Outfall 005 and its substantially identical outfalls is that associated with hazardous waste storage and management. A more appropriate SIC Code for this outfall, and its substantially identical outfall, is 4953 – Refuse Systems. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 005 is to address potential stormwater contamination associated with hazardous waste storage and management.

In accordance with the SWGP, activities addressed under Sector K include those associated with hazardous waste treatment, storage, or disposal facilities (TSDFs). Because the stormwater discharges from Outfall 005 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector K of the SWGP for Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), Total Organic Carbon (TOC), Total Recoverable Arsenic, Total Recoverable Cadmium, Total Recoverable Lead, Total Recoverable Magnesium, Total Recoverable Mercury, Total Recoverable Selenium, Total Recoverable Silver and Total Cyanide be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, the following benchmark concentrations are proposed: Total Suspended Solids (TSS) – 100 mg/L, Total Kjeldahl Nitrogen (TKN) – 1.5 mg/L, Total Organic Carbon (TOC) – 110 mg/L, Total Recoverable Arsenic – 50 µg/L, Total Recoverable Cadmium – 2.1 µg/L, Total Recoverable Lead – 120 µg/L, Total Recoverable Magnesium – 64 µg/L, Total Recoverable Mercury – 1.4 µg/L, Total Recoverable Selenium – 5.0 µg/L, Total Recoverable Silver – 3.8 µg/L, and Total Cyanide – 22 µg/L. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.c). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 005. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.c). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates the need for an average monthly lead limit of 8.2 µg/L (Attachment 9.c). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 8.2 ug/L, the 2x acute criteria action level is 16 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates the need for an average monthly nickel limit of 16 µg/L (Attachment 9.c). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 16 ug/L, the 2x acute criteria action level is 32 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Aluminum, Barium, Boron, Cobalt, Iron, Magnesium and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted, except for Magnesium which is required under Sector K of the SWGP.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 005 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 005 (HazWaste Facility - <90 day)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 005 is substantially identical to Outfall 2759. Discharge data from Outfall 005 may be submitted to represent this outfall.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Organic Carbon (TOC) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Arsenic, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Cadmium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Chromium, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Magnesium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Selenium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Silver, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Cyanide, Total ^(a)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-180

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Stormwater Monitoring Requirements: Outfall 005 (HazWaste Facility - <90 day) - Continued

Average Flow. Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 005 is substantially identical to Outfall 2759. Discharge data from Outfall 005 may be submitted to represent this outfall.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TKN – 1.5 mg/L; TOC – 110 mg/L; Total Recoverable Arsenic – 50 µg/L; Total Recoverable Cadmium – 2.1 µg/L; Dissolved Copper – 14 µg/L; Dissolved Lead – 16 µg/L; Total Recoverable Lead – 120 µg/L; Total Recoverable Magnesium – 64 µg/L; Total Recoverable Mercury – 1.4 µg/L; Dissolved Nickel – 32 µg/L; Total Recoverable Selenium – 50 µg/L; Total Recoverable Silver – 3.8 µg/L; Total Cyanide – 22 µg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and $\text{NO}_2 + \text{NO}_3$ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

Metals and Total Hardness Requirements:

- e. Samples for metals and hardness shall be collected concurrently.



Photo 1. Outfall 005.

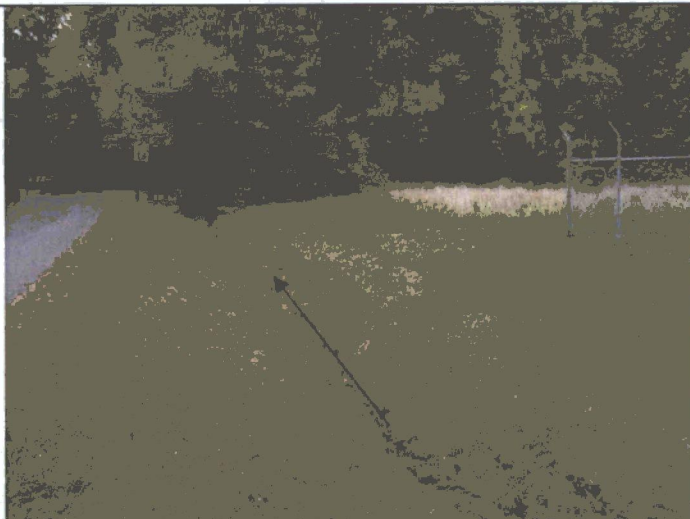


Photo 2. Downstream of Outfall 005. Stormwater flow is in the direction of the arrow.



Photo 3. Hazardous waste storage building located within drainage area of Outfall 005.



Photo 4. Area of remediated PCB contamination within drainage area of Outfall 005.

Outfall 006
National Guard Motor Pool

Substantially Identical Outfalls:

None

Discharge Location:

Gunston Cove, Unnamed Tributary

Drainage Area Discussion:

Army motor pools house tactical vehicles and equipment between operations with maintenance activities being conducted. Vehicles requiring heavy maintenance are taken off site to Fort A.P. Hill. As such, only minor maintenance is conducted on site. It is staff's professional judgement that Outfall 006 does however have the potential to be impacted by the motor pool activities within its drainage area.

Outfall 006 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. Stormwater exits the motor pool area ponding in a grassy area before flowing under Theote Road and discharging via Outfall 006. According to the permit application, the drainage area is comprised of approximately 0.5 acres with the entire 0.5 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 29 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 7538. Activities addressed under this SIC Code include general automotive repair and service as well as engine repair. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with those found in Sector P – Land Transportation and Warehousing. Given the primary industrial activity with the potential to impact stormwater quality at Outfall 006 is that associated with vehicle maintenance activities, it is staff's professional judgement that the monitoring requirements found in Sector P be applied. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Codes 40, 41, 42, 43, and 5171 (Land Transportation and Warehousing – as applied to SIC Code 7538)

Discharges from land transportation and warehousing facilities, specifically SIC Codes 40, 41, 42, 43, and 5171, are covered under Sector P of the SWGP. Activities addressed under this sector vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations. Because the stormwater discharges from Outfall 006 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector P of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 006 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 006 (National Guard Motor Pool)

Average Flow Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement	MGD = Million gallons per day.	1/6M = Once every six months
2. 9VAC25-151-70	NA = Not applicable.	
3. 9VAC25-151-230	NL = No limit; monitor and report	
	S.U. = Standard units.	

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U., pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 006.



Photo 2. Downstream from Outfall 006. Stormwater flow is in the direction of the arrow.



Photo 3. Ponding area for stormwater the flows from the motor pool in the background of the photo.



Photo 4. Stormwater from the ponding area in Photo 3 enters the culvert shown in this photo and flows under Theote Road discharging from Outfall 006.

Outfall 007
21st Street Waste Facility

Substantially Identical Outfalls:

2823, 2829, and 2832

Discharge Location:

Gunston Cove, Unnamed Tributary

Drainage Area Discussion:

The SWGP defines open dump as a site on which any solid waste is placed, discharged, deposited, injected, dumped, or spilled so as to present a threat of a release of harmful substances into the environment or present a hazard to human health. The 21st Street Waste Facility is located on top of a concrete cap with a layer of soil where solid waste is placed without any best management practices in place to minimize impact to stormwater runoff. Based on staff observations made on October 23, 2013, and November 14, 2013, it is staff's professional judgement that the 21st Street Waste Facility has the potential to impact stormwater quality discharged via Outfall 007 and should be viewed as an open dump for purposes of this permit.

Outfall 007 and the associated drainage area were observed by staff during site visits conducted on October 23, 2013 and November 14, 2013. According to the permit application, the drainage area is comprised of approximately 56.1 acres with 10.4 acres being considered impervious. Four (4) percent of the drainage area is considered to be associated with industrial activity.

See Pages 33 - 34 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4952 and 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 007 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 007 to address potential stormwater contamination from an area that could be classified as an open dump, as well as SWMUs.

Sector L of the SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

➤ **Secondary Industrial Activities**

SIC Code 4952 (Sewerage Systems)

Activities addressed under this SIC Code include the collection and disposal of wastes conducted through a sewer system, including such treatment processes as may be provided. Municipal operations such as this are not provided coverage under this industrial discharge permit.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.d). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates the need for an average monthly lead limit of 8.2 µg/L (Attachment 9.d). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 8.2 ug/L, the 2x acute criteria action level is 16 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.d). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 007. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Cobalt, Iron, Magnesium and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:**Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):**

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 007 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 007 (21st Street Waste Facility)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 007 is substantially identical to Outfalls 2823, 2829, and 2832. Discharge data from Outfall 007 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH _(a)	1	NA	NA	NL (S U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Copper, Dissolved ^(a,d)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(a,d)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(d)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total ^(d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement

2. 9VAC25-151-70

3. 9VAC25-151-190

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) 6.0 S.U ; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; Dissolved Copper – 14 µg/L; Dissolved Lead – 16 µg/L.

Nutrient Requirements:

- b Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c Samples shall be conducted during each of the first four semi-annual monitoring periods.

Metals and Total Hardness Requirements:

- d. Samples for metals and hardness shall be collected concurrently



Photo 1. Outfall 007 (10-23-14).



Photo 2. Drainage area to Outfall 007 (10-23-14).



Photo 3. Drainage area to Outfall 007 (10-23-14).



Photo 4. Drainage area to Outfall 007 (10-23-14).



Photo 5. Debris in drainage area to Outfall 007.



Photo 6. Debris in drainage area to Outfall 007.



Photo 7. Debris in drainage area to Outfall 007.



Photo 8. Debris in drainage area to Outfall 007.



Photo 9. Debris in drainage area to Outfall 007.



Photo 10. Debris in drainage area to Outfall 007.



Photo 11. Debris in drainage area to Outfall 007.

Outfall 008
Aerospace Data Facility (NE)

Substantially Identical Outfalls:

5015, 5017, 5018, 5021, 5026, 5028, and 5038

Discharge Location:

Dogue Creek, Unnamed Tributary

Drainage Area Discussion:

The Aerospace Data Facility (ADF) is a satellite ground station responsible for the command and control of reconnaissance satellites involved in the collection of intelligence information. Due to security measures, additional information is limited for permitting decisions.

Outfall 008 and the associated drainage area were observed by staff during a site visit conducted on June 17, 2014. According to the permit application, the drainage area is comprised of approximately 8.1 acres with 1.0 acre being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 41 of this attachment for cleared photos provided by Fort Belvoir.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4911, 4953, 4955, 4961, 5541, 7538, 8731, and 8734. The primary industrial activities taking place are associated with Commercial Physical and Biological Research and Testing Laboratories (SIC Codes 8731 and 8734, respectively). Given these activities are conducted inside, there is little potential to impact stormwater quality at Outfall 008 and its substantially identical outfalls. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 8731 (Commercial Physical and Biological Research)

Activities addressed under this SIC Code include those from establishments primarily engaged in commercial physical and biological research and development on a contract or fee basis. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the ADF – East drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

Due to security measures, no further information concerning the activities within the drainage area to Outfall 008 are available.

SIC Code 8734 (Testing Laboratories)

Activities addressed under this SIC Code include those from establishments primarily engaged in providing testing services. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the ADF – East drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

Due to security measures, no further information concerning the activities within the drainage area to Outfall 008 are available.

➤ **Secondary Industrial Activities**

SIC Code 4911 (Electric Services)

Activities addressed under this SIC Code include establishments engaged in the generation, transmission, and/or distribution of electric energy for sale. It is staff's understanding that the facility is not engaged in the generation, transmission, and/or distribution of electric energy for sale. Additionally, while this SIC Code is addressed under Sector O of the SWGP, the requirements listed under this section apply to stormwater discharges from steam electric power generating facilities using coal, natural gas, oil, nuclear energy, etc. to produce a steam source, including coal handling areas. Based on site reviews conducted during the drafting of the permit, it is staff's professional judgement that no monitoring is warranted for this source.

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 008 is to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

SIC Code 4953 (Refuse Systems)

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4955. However, the SIC Code provided in the application is not a valid SIC Code recognized by the Occupational Safety and Health Administration (OSHA). Rather SIC Code 4955 is specific to the Securities and Exchange Commission (SEC), specifically, the Division of Corporation Finance, as a basis for assigning review responsibility for a company's filings. Within the SEC framework, SEC-Specific Industry 4955 is associated with Hazardous Waste Management.

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 008 is to address potential stormwater contamination associated with hazardous waste storage and management.

In accordance with the SWGP, activities addressed under Sector K include those associated with hazardous waste treatment, storage, or disposal facilities (TSDFs). Because the stormwater discharges from Outfall 008 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector K of the SWGP for Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), Total Organic Carbon (TOC), Total Recoverable Arsenic, Total Recoverable Cadmium, Total Recoverable Lead, Total Recoverable Magnesium, Total Recoverable Mercury, Total Recoverable Selenium, Total Recoverable Silver and Total Cyanide be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, the following benchmark concentrations are proposed: Total Suspended Solids (TSS) – 100 mg/L, Total Kjeldahl Nitrogen (TKN) – 1.5 mg/L, Total Organic Carbon (TOC) – 110 mg/L, Total Recoverable Arsenic – 50 µg/L, Total Recoverable Cadmium – 2.1 µg/L, Total Recoverable Lead – 120 µg/L, Total Recoverable Magnesium – 64 µg/L, Total Recoverable Mercury – 1.4 µg/L, Total Recoverable Selenium – 5.0 µg/L, Total Recoverable Silver – 3.8 µg/L, and Total Cyanide – 22 µg/L. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

SIC Code 4961 (Steam and Air Conditioning Supply)

Activities addressed under this SIC Code include distribution of cooled air, geothermal steam production, and steam heating systems. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, uncontaminated condensate discharges from these activities are considered an allowable non-stormwater discharge in accordance with the SWGP.

As noted above, discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. This SIC Code is likely being applied to heating, ventilation, and air conditioning (HVAC) or refrigeration systems located within the drainage area of Outfall 008. In cases such as this, applying the monitoring requirements from the *General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons per Day or Less* (9VAC25-196) would be appropriate. However, information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates discharges associated with the cooling towers utilized for air conditioning are directed to the sanitary sewer system. As such, it is staff's professional judgement that additional monitoring is not warranted for this source.

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's understanding that the facility is not engaged in the selling of gasoline. Staff is not able to determine from the application the overall applicability of this SIC Code to the ADF – East area. However, the primary pollutant of concern from fuel storage and/or fueling operations would be TPH.

This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, it is staff's professional judgement that monitoring for TPH be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP. With this issuance, a benchmark concentration of 15 mg/L is proposed for TPH.

SIC Code 7538 (General Automotive Repair Shops)

Activities addressed under this SIC Code include automotive and engine repair shops. Staff is not able to determine from the application the overall applicability of this SIC Code to the ADF - East area. However, the primary pollutants of concern from automotive maintenance and repair would be TSS and TPH. While this SIC Code is not specifically addressed within the SWGP, it is staff's professional judgement that monitoring for TSS and TPH be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP. Staff believes that the previously proposed monitoring for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Copper, Iron, Magnesium, Manganese, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.e). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.e). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 008. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted, except for Magnesium which is required under Sector K of the SWGP.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 008 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Chloride, Total Dissolved Solids, and Specific Conductance:

A salt storage dome is maintained within the drainage area to Outfall 008 to provide for maintenance of paved surfaces during winter months. As such, the stock pile of salt is not exposed to stormwater. However, residual salt from loading and unloading activities would have the potential to be exposed to stormwater and/or snow melt conditions and thereby impact the discharge from Outfall 008. As such, it is staff's professional judgement that monitoring for chloride, total dissolved solids, and specific conductance be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with monitoring frequencies established elsewhere within this permit. Samples for chloride, total dissolved solids, and specific conductance shall be conducted within the semi-annual period during times when salt movements are occurring. That is, sampling shall be conducted during January 1 – June 30 and July 1 – December 31 when salt movements are occurring and/or salt is being applied.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 008 (Aerospace Data Facility – NE)

Average Flow Variable based on storm event.

Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 008 is substantially identical to Outfalls 5015, 5017, 5018, 5021, 5026, 5028, and 5038. Discharge data from Outfall 008 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Organic Carbon (TOC) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chloride ^(d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Dissolved Solids (TDS) ^(d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Specific Conductance ^(d)	1	NA	NA	NA	NL (µmhos/cm)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(f)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(f)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Arsenic, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Cadmium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Magnesium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Selenium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Silver, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Cyanide, Total ^(a)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-180

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge

Stormwater Monitoring Requirements: Outfall 008 (Aerospace Data Facility – NE) - Continued

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 008 is substantially identical to Outfalls 5015, 5017, 5018, 5021, 5026, 5028, and 5038. Discharge data from Outfall 008 may be submitted to represent these outfalls.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) 6.0 S.U.; pH (Maximum) 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L; TKN – 1.5 mg/L; TOC – 110 mg/L; Total Recoverable Arsenic – 50 µg/L; Total Recoverable Cadmium – 2.1 µg/L; Dissolved Copper – 14 µg/L; Total Recoverable Lead – 120 µg/L; Total Recoverable Magnesium – 64 µg/L; Total Recoverable Mercury – 1.4 µg/L; Total Recoverable Selenium – 5.0 µg/L; Total Recoverable Silver – 3.8 µg/L; Total Cyanide – 22 µg/L

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Metals and Total Hardness Requirements:

- c. Samples for metals and hardness shall be collected concurrently.

Chloride, Total Dissolved Solids, and Specific Conductance Requirements:

- d. Samples for chloride, total dissolved solids, and specific conductance shall be collected during the winter months associated with the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when salt movements are occurring and/or salt is being applied.

Nutrient Requirements:

- e. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and $\text{NO}_2 + \text{NO}_3$ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- f. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 008.

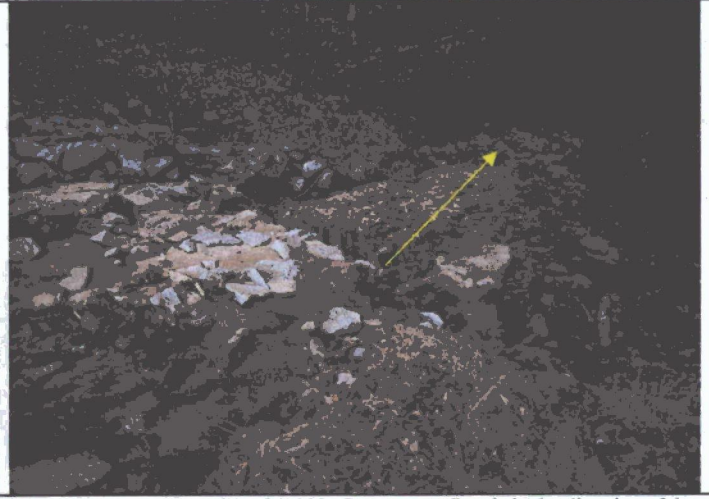


Photo 2. Downstream of Outfall 008. Stormwater flow is in the direction of the arrow.



Photo 3. Further downstream from Photo 2.



Photo 4. Drainage area to Outfall 008.



Photo 5. Salt dome associated with drainage area to Outfall 008.



Photo 6. Stream reach behind salt dome that flows to Outfall 008.

Outfall 009
Swank-Snyder Golf Course

Substantially Identical Outfalls:

4040, 4042, 4044, 4050, 4052, 4054, 4300, 5318, 5320, 5321, 5594, 5596, 5597, 5726, 5729, 5767, 5768, 5779, 5782, 5784, 5788, and 5844

Discharge Location:

Accotink Creek, Unnamed Tributary

Drainage Area Discussion: The Swank-Snyder Golf Course is an 18-hole course utilized by active duty, retired military, government civilians and their guests. Outfall 009 is associated with a course maintenance area. The maintenance area contains sand for use on the course as well as an area of mulch storage. A self-contained wash rack is also located at the maintenance area for cleaning lawn mowers. At the time of the site visit, the system was broken. According to Fort Belvoir staff, lawn mowers are washed in the grass while the wash rack is out of service.

Outfall 009 and the associated drainage area were observed by staff during a site visit conducted on October 24, 2013. According to the permit application, the drainage area is comprised of approximately 103 acres with 5.8 acres being considered impervious. Twenty-five (25) percent of the drainage area is considered to be associated with industrial activity.

See Pages 46 – 47 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4953 and 7997. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 009 and its substantially identical outfalls is that associated with SWMUs (SIC Code 4953). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 009 is to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

➤ **Secondary Industrial Activities**

SIC Code 7997 (Membership Sports and Recreation Clubs)

Activities addressed under this SIC Code include Sports and recreation clubs which are restricted to use by members and their guests. Country, golf, tennis, yacht, and amateur sports and recreation clubs are included in this industry. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. As such, it is staff's professional judgement that additional monitoring is not warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Copper, Iron, Magnesium, Manganese, Nickel and Tin.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.f). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates the need for an average monthly nickel limit of 16 µg/L (Attachment 9f.). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 16 ug/L, the 2x acute criteria action level is 32 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Aluminum, Barium, Boron, Iron, Magnesium, Manganese and Tin:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 009 be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP. Nutrient monitoring will also address concerns associated with turf management, specifically the application of nitrogen and phosphorus based fertilizers.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Suspended Solids:

During site reviews conducted during the drafting of the permit, staff observed mulch and sand storage within the drainage area of Outfall 009. Stormwater discharges from mulching facilities, specifically SIC Code 2499, are covered under Sector A - Timber Products Facilities of the SWGP. Activities addressed under this sector include the production of lumber and wood materials. Because the mulch at the Swank/Snyder Golf Course is only stored at the location and is not produced there, it is staff's professional judgement that the requirements of Sector A are not applicable.

However, staff believes there is reasonable potential for impacts to stormwater quality from sand storage. As such, is staff's professional judgement that monitoring for Total Suspended Solids (TSS) be implemented with this issuance. A benchmark concentration of 100 mg/L is proposed for TSS which is consistent with TSS monitoring established elsewhere in this permit. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

Chloride, Total Dissolved Solids, and Specific Conductance:

Information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates that there is storage for salt utilized for snow removal within the drainage area to Outfall 009. Residual salt from loading and unloading activities would have the potential to be exposed to stormwater and/or snow melt conditions and thereby impact the discharge from Outfall 009. As such, it is staff's professional judgement that monitoring for chloride, total dissolved solids, and specific conductance be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with monitoring frequencies established elsewhere within this permit. Samples for chloride, total dissolved solids, and specific conductance shall be conducted within the semi-annual period during times when salt movements are occurring. That is, sampling shall be conducted during January 1 – June 30 and July 1 – December 31 when salt movements are occurring and/or salt is being applied.

Additionally, since the original development of the draft permit a chloride TMDL is being developed for the Accotink Creek watershed. Given the information in Attachment 11 indicates the storage of salt and the location of the outfall is within the Accotink Creek watershed, monitoring for chloride, total dissolved solids, and specific conductance is appropriate.

Total Petroleum Hydrocarbons (TPH):

At the request of the permittee, monitoring for TPH shall also be implemented with this issuance. A benchmark concentration of 15 mg/L, which is consistent with TPH monitoring found elsewhere within the permit, shall be established with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 009 (Swank-Snyder Golf Course)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 009 is substantially identical to Outfalls 4040, 4042, 4044, 4050, 4052, 4054, 4300, 5318, 5320, 5321, 5594, 5596, 5597, 5726, 5729, 5767, 5768, 5779, 5782, 5784, 5788, and 5844 Discharge data from Outfall 009 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chloride ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Dissolved Solids (TDS) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Specific Conductance ^(b)	1	NA	NA	NA	NL (µmhos/cm)	1/6M	Grab
Total Petroleum Hydrocarbons ^(a,d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement

2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- The following benchmark concentrations are applicable: pH (Minimum) - 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L; Dissolved Copper – 14 µg/L; Dissolved Nickel – 32 µg/L.

Chloride, Total Dissolved Solids, and Specific Conductance Requirements:

- Samples for chloride, total dissolved solids, and specific conductance shall be collected during the winter months associated with the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when salt movements are occurring and/or salt is being applied.

Metals and Total Hardness Requirements:

- Samples for metals and hardness shall be collected concurrently.

Total Petroleum Hydrocarbons Requirements:

- Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests.

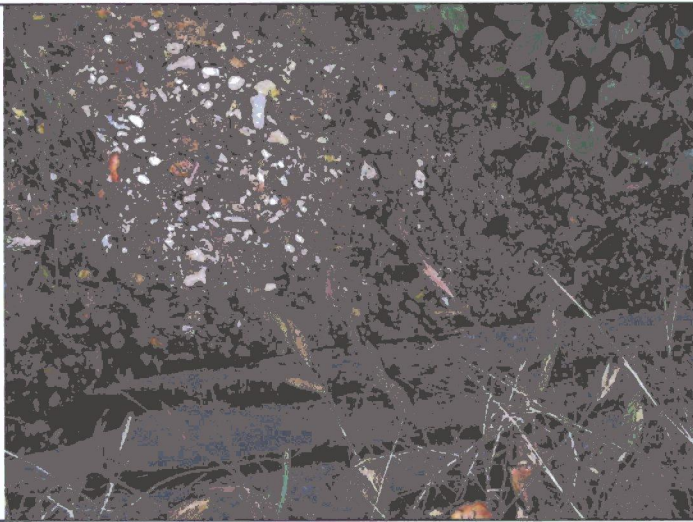


Photo 1. Outfall 009.

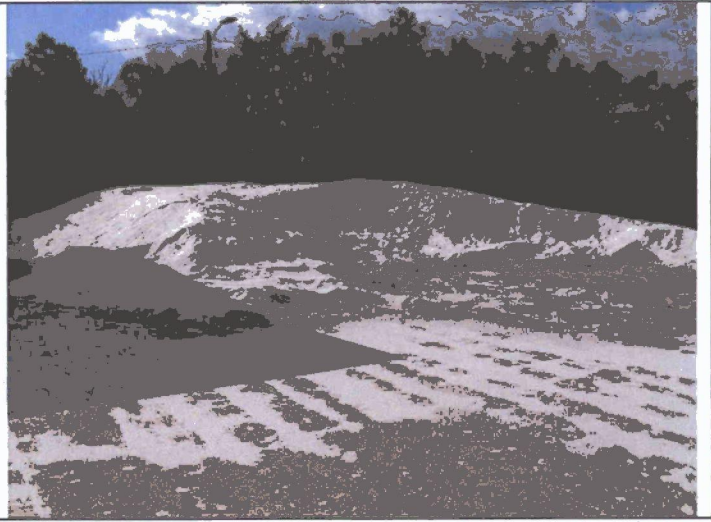


Photo 2. Sand storage at course maintenance area which is within the drainage area of Outfall 009.

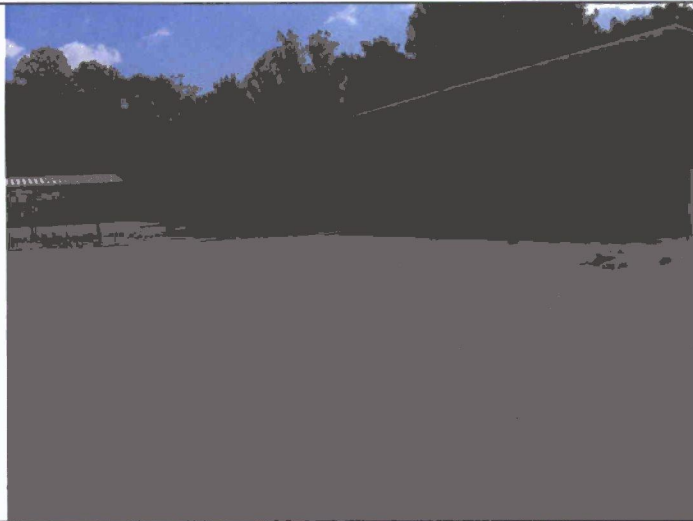


Photo 3. Course maintenance area within drainage area of Outfall 009.



Photo 4. Course maintenance area within drainage area of Outfall 009.

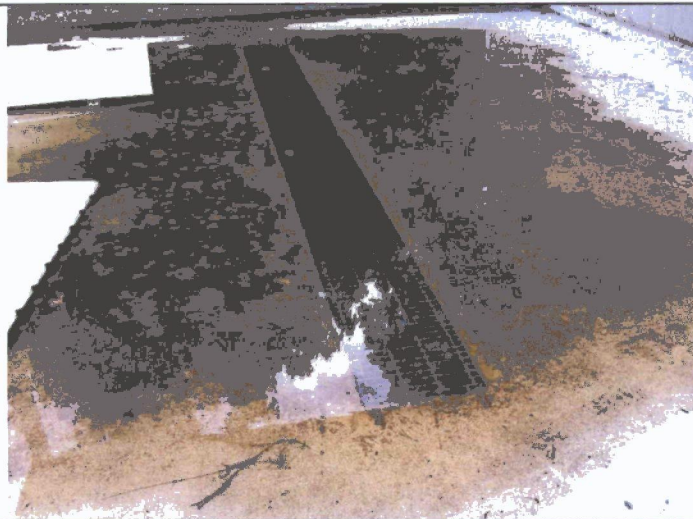


Photo 5. Wash rack located at course maintenance area.



Photo 6. Mulch/debris at course maintenance area within drainage area of Outfall 009.



Photo 7. Mulch/debris at course maintenance area within drainage area of Outfall 009.



Photo 8. Mulch/debris at course maintenance area within drainage area of Outfall 009.

Outfall 010
249th Prime Power Motor Pool (Meade Road)

Substantially Identical Outfalls:

3243, 3258, and 3260

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

Army motor pools house tactical vehicles and equipment between operations with maintenance activities being conducted. Vehicles requiring heavy maintenance are taken off site to Fort A.P. Hill. As such, only minor maintenance is conducted on site. It is staff's professional judgement that Outfall 010 does however have the potential to be impacted by the motor pool activities within its drainage area.

Outfall 010 and the associated drainage area were observed by staff during a site visit conducted on October 30, 2013. Stormwater exits the motor pool area flowing towards Meade Road and discharging via Outfall 010. According to the permit application, the drainage area is comprised of approximately 4.4 acres with 2.3 acres being considered impervious. Forty-five (45) percent of the drainage area is considered to be associated with industrial activity.

Information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates that the 249th Prime Power Unit will be moving from their current location to a new location at the corner of Pohick and Theote Roads. This move is tentatively slated for 2017 to allow for construction of a new entrance to the installation. As such, the outfall as proposed in this draft will no longer be in service. Once operational, the outfall associated with the new 249th Prime Power Unit location cannot be designated as Outfall 010 despite the industrial activities within the drainage area remaining the same and the discharge to an unnamed tributary to Accotink Bay remaining the same. Please see Pages 144 - 146 of this attachment for monitoring requirements associated with the new location.

See Page 51 of this attachment for photos taken during the site visit.

Industrial Activity Discussion: Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 7538 and 7542. Activities addressed under SIC Code 7538 include general automotive repair and service as well as engine repair. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with those found in Sector P – Land Transportation and Warehousing. Given the primary industrial activity with the potential to impact stormwater quality at Outfall 010 is that associated with vehicle maintenance activities, it is staff's professional judgement that the monitoring requirements found in Sector P be applied. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Codes 40, 41, 42, 43, and 5171 (Land Transportation and Warehousing – as applied to SIC Code 7538)

Discharges from land transportation and warehousing facilities, specifically SIC Codes 40, 41, 42, 43, and 5171, are covered under Sector P of the SWGP. Activities addressed under this sector vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations. Because the stormwater discharges from Outfall 010 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector P of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

➤ **Secondary Industrial Activities**

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack is connected to the sanitary sewer system and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 010 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 010 (249th Prime Power Motor Pool – Meade Road)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the outfall is removed due to construction, or the expiration date, whichever comes first.

Outfall 010 is substantially identical to Outfalls 3243, 3258, and 3260. Discharge data from Outfall 010 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-230

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 010.

Outfall 011
12th Aviation Motor Pool / Washrack

Substantially Identical Outfalls:

3209, 3211, 3215, 3220, and 3222

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

Army motor pools house tactical vehicles and equipment between operations with maintenance activities being conducted. Vehicles requiring heavy maintenance are taken off site to Fort A.P. Hill. As such, only minor maintenance is conducted on site. It is staff's professional judgement that Outfall 011 does however have the potential to be impacted by the motor pool activities within its drainage area.

Outfall 011 and the associated drainage area were observed by staff during a site visit conducted on October 30, 2013. According to the permit application, the drainage area is comprised of approximately 3.1 acres with 2.9 acres being considered impervious. Ninety-four (94) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 7538 and 7542. Activities addressed under SIC Code 7538 include general automotive repair and service as well as engine repair. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with those found in Sector P – Land Transportation and Warehousing. Given the primary industrial activity with the potential to impact stormwater quality at Outfall 011 is that associated with vehicle maintenance activities, it is staff's professional judgement that the monitoring requirements found in Sector P be applied. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Codes 40, 41, 42, 43, and 5171 (Land Transportation and Warehousing – as applied to SIC Code 7538)

Discharges from land transportation and warehousing facilities, specifically SIC Codes 40, 41, 42, 43, and 5171, are covered under Sector P of the SWGP. Activities addressed under this sector vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations. Because the stormwater discharges from Outfall 011 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector P of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

➤ **Secondary Industrial Activities**

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack is connected to the sanitary sewer system and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:**Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):**

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 011 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 011 (12th Aviation Motor Pool / Washrack)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 011 is substantially identical to Outfalls 3209, 3211, 3215, 3220, and 3222. Discharge data from Outfall 011 may be submitted to represent these outfalls

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-230

MGD = Million gallons per day

NA = Not applicable.

NL = No limit, monitor and report

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U., pH (Maximum) 9.0 S.U.; TSS – 100 mg/L, TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 012
Mosby Center

Substantially Identical Outfalls:

5510, 5512, 5514, 5521, 5737, and 5740

Discharge Location:

Accotink Creek, Unnamed Tributary

Drainage Area Discussion:

The John Mosby Reserve Center is more commonly referred to as the Mosby Center. The Mosby Center serves as an Army Reserve center with a primary activity of serving as a motor pool for tactical vehicles and equipment between operations with maintenance activities being conducted. Vehicles requiring heavy maintenance or washing are taken off site to Fort A.P. Hill. As such, only minor maintenance is conducted on site. It is staff's professional judgement that Outfall 012 does however have the potential to be impacted by the motor pool activities within its drainage area.

Outfall 012 and the associated drainage area were observed by staff during a site visit conducted on October 30, 2013. According to the permit application, the drainage area is comprised of approximately 8.41 acres with 1.8 acres being considered impervious. Fifty-one (51) percent of the drainage area is considered to be associated with industrial activity.

See Page 60 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4953, 4955, 5812, 7538, and 7542. Activities addressed under SIC Code 7538 include general automotive repair and service as well as engine repair. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with those found in Sector P – Land Transportation and Warehousing. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 012 and its substantially identical outfalls is that associated with vehicle maintenance activities. As such, it is staff's professional judgement that the monitoring requirements found in Sector P be applied. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Codes 40, 41, 42, 43, and 5171 (Land Transportation and Warehousing – as applied to SIC Code 7538)

Discharges from land transportation and warehousing facilities, specifically SIC Codes 40, 41, 42, 43, and 5171, are covered under Sector P of the SWGP. Activities addressed under this sector vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations. Because the stormwater discharges from Outfall 012 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector P of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

➤ **Secondary Industrial Activities**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 012 is to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

SIC Code 4955 (applied as SIC Code 4953 - Refuse Systems)

The SIC Code provided in the application is not a valid SIC Code recognized by the Occupational Safety and Health Administration (OSHA). Rather SIC Code 4955 is specific to the Securities and Exchange Commission (SEC), specifically, the Division of Corporation Finance, as a basis for assigning review responsibility for a company's filings. Within the SEC framework, SEC-Specific Industry 4955 is associated with Hazardous Waste Management. Discharges associated with hazardous waste management as associated with SIC Code 4953 and are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 012 is to address potential stormwater contamination associated with hazardous waste storage and management.

In accordance with the SWGP, activities addressed under Sector K include those associated with hazardous waste treatment, storage, or disposal facilities (TSDFs). Because the stormwater discharges from Outfall 012 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector K of the SWGP for Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), Total Organic Carbon (TOC), Total Recoverable Arsenic, Total Recoverable Cadmium, Total Recoverable Lead, Total Recoverable Magnesium, Total Recoverable Mercury, Total Recoverable Selenium, Total Recoverable Silver and Total Cyanide be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, the following benchmark concentrations are proposed: Total Suspended Solids (TSS) – 100 mg/L, Total Kjeldahl Nitrogen (TKN) – 1.5 mg/L, Total Organic Carbon (TOC) – 110 mg/L, Total Recoverable Arsenic – 50 µg/L, Total Recoverable Cadmium – 2.1 µg/L, Total Recoverable Lead – 120 µg/L, Total Recoverable Magnesium – 64 µg/L, Total Recoverable Mercury – 1.4 µg/L, Total Recoverable Selenium – 5.0 µg/L, Total Recoverable Silver – 3.8 µg/L, and Total Cyanide – 22 µg/L. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

SIC Code 5812 (Eating Places)

Activities addressed under this SIC Code include establishments primarily engaged in the retail sale of prepared food and drinks for on-premise or immediate consumption. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. As such, it is staff's professional judgement that additional monitoring is not warranted for this source.

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack has been decommissioned and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Copper, Iron, Magnesium, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.g). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 012. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.g). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.g). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 012. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Iron, and Magnesium:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted, except for Magnesium which is required under Sector K of the SWGP.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 012 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 012 (Mosby Center)

Average Flow: Variable based on storm event

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 012 is substantially identical to Outfalls 5510, 5512, 5514, 5521, 5737 and 5740 Discharge data from Outfall 012 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Organic Carbon (TOC) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Arsenic, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Cadmium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Chromium, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Magnesium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Selenium, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Silver, Total Recoverable ^(a,c)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Cyanide, Total ^(a)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab

The basis for the limitations codes are.

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-180

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Stormwater Monitoring Requirements: Outfall 012 (Mosby Center) - Continued

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 012 is substantially identical to Outfalls 5510, 5512, 5514, 5521, 5737 and 5740. Discharge data from Outfall 012 may be submitted to represent these outfalls.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L; TKN – 15 mg/L; TOC – 110 mg/L; Total Recoverable Arsenic – 50 µg/L; Total Recoverable Cadmium – 2.1 µg/L; Dissolved Copper – 14 µg/L; Total Recoverable Lead – 120 µg/L; Total Recoverable Magnesium – 64 µg/L; Total Recoverable Mercury – 1.4 µg/L; Total Recoverable Selenium – 5.0 µg/L; Total Recoverable Silver – 3.8 µg/L; Total Cyanide – 22 µg/L

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Metals and Total Hardness Requirements:

- c. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- d. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- e. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 012.



Photo 2. Downstream from Outfall 012. Stormwater flow is in the direction of the arrow.

Outfall 013
Arby's / Army and Air Force Exchange Services (AAFES) Station*

Substantially Identical Outfalls:
3762, 3763, and 3771

Discharge Location:
Mason Run, Unnamed Tributary

Drainage Area Discussion:

The AAFES Station is a retail gasoline station for personally owned vehicles. The AAFES station is also co-located with a Church's Chicken restaurant. A grease trap, located at the rear of the restaurant, does not have any best management practices in place to minimize impact to stormwater runoff. Stormwater from this area enters a drop inlet and discharges via Outfall 013.

Outfall 013 and the associated drainage area were observed by staff during a site visit conducted on October 24, 2013. According to the permit application, the drainage area is comprised of approximately 1.3 acres with 0.2 acres being considered impervious. Twenty-eight (28) percent of the drainage area is considered to be associated with industrial activity.

*Information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates that the Church's Chicken identified in the application is now an Arby's. This change has no impact on the proposed monitoring.

See Page 65 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 5541, 5812, and 7542. Activities addressed under SIC Codes 5541 and 5812 are not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. As such, sector specific requirements of the SWGP are not applicable to this outfall. Activities addressed under SIC Code 7542 include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. However, it is staff's professional judgement that there is reasonable potential for the stormwater discharges from this location to be impacted by the activities taking place within the drainage area.

➤ **Primary Industrial Activity**

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 013 and its substantially identical outfalls is that associated with vehicle fueling operations. While this SIC Code is not specifically addressed within the SWGP, staff believes that monitoring for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

While sector specific requirements of the SWGP are not being applied to this outfall, it is staff's professional judgement that the use of action levels are appropriate for proper management of stormwater quality. To provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

➤ **Secondary Industrial Activities**

SIC Code 5812 (Eating Places)

Activities addressed under this SIC Code include establishments primarily engaged in the retail sale of prepared food and drinks for on-premise or immediate consumption. As noted above, this SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the establishment's grease trap is located outside without any best management practices in place, it is staff's professional judgement that monitoring for Oil and Grease (O&G) be implemented with this issuance. Staff believes that monitoring for O&G sufficiently addresses any potential concerns with stormwater runoff from this activity. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with other monitoring established in this permit.

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. As noted above, discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. This SIC Code is being applied to a coin operated car wash within the drainage area of the outfall. However, the coin operated car wash is connected to sanitary and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Antimony, Barium, Boron, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.h). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 013. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.h). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.h). While a limit is not warranted, lead was noted as being present in the discharge from Outfall 013. As such, it is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.h). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 013. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Antimony, Barium, Boron, Iron, Magnesium, Manganese and Molybdenum:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 013 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 013 (Arby's / AAFES Station)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 013 is substantially identical to Outfalls 3762, 3763, and 3771 Discharge data from Outfall 013 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^(a,b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Oil and Grease	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chromium, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day
 NA = Not applicable.
 NL = No limit; monitor and report
 S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U., pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L; Dissolved Copper – 14 µg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Metals and Total Hardness Requirements:

- c. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- d. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- e. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 013.



Photo 2. Rear of Arby's (Church's Chicken at time of photo) which is within the drainage area of Outfall 013.



Photo 3. Curb inlet that receives stormwater flow from drainage area associated with Outfall 013.



Photo 4. Drainage area to curb inlet shown in Photo 3.

Outfall 014
Army and Air Force Exchange Services (AAFES) Station

Substantially Identical Outfalls:

3745, 3752, 3753, 3756, 3757, 3758, 3759 and 3773

Discharge Location:

Mason Run, Unnamed Tributary

Drainage Area Discussion:

The AAFES Station is a retail gasoline station for personally owned vehicles. Stormwater enters curb inlets throughout the fueling area and comeslingles with stormwater in a stormwater retention pond via Outfall 014. When flow is sufficient enough, a riser structure within the retention pond will discharge flowing under Gorgas Road discharging in to a heavily wooded area.

Outfall 014 and the associated drainage area were observed by staff during a site visit conducted on October 24, 2013. According to the permit application, the drainage area is comprised of approximately 1.7 acres with 0.1 acres being considered impervious. Fifty-four (54) percent of the drainage area is considered to be associated with industrial activity.

See Page 69 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 5541 and 5812. Activities addressed under SIC Codes 5541 and 5812 are not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. As such, sector specific requirements of the SWGP are not applicable to this outfall. However, it is staff's professional judgement that there is reasonable potential for the stormwater discharges from this outfall to be impacted by the activities taking place within the drainage area.

➤ **Primary Industrial Activity**

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 014 and its substantially identical outfalls is that associated with vehicle fueling operations. While this SIC Code is not specifically addressed within the SWGP, staff believes that monitoring for TSS and TPH would sufficiently address any potential concerns with stormwater runoff from these activities.

While sector specific requirements of the SWGP are not being applied to this outfall, it is staff's professional judgement that the use of action levels are appropriate for proper management of stormwater quality. To provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

➤ **Secondary Industrial Activities**

SIC Code 5812 (Eating Places)

Activities addressed under this SIC Code include establishments primarily engaged in the retail sale of prepared food and drinks for on-premise or immediate consumption. As noted above, this SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Based on the site visit conducted on October 24, 2013, it is staff's professional judgement that Outfall 014 would not receive stormwater flow from the activities associated with the co-located Arby's. As such, it is staff's professional judgement that additional monitoring is not warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Antimony, Barium, Boron, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.i). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 014. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.i). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.i). While a limit is not warranted, lead was noted as being present in the discharge from Outfall 014. As such, it is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.i). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 014. As such, it is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Antimony, Barium, Boron, Iron, Magnesium, Manganese and Molybdenum:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted

Additional Stormwater Monitoring Requirements:**Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):**

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 014 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 014 (AAFES Station)

Average Flow: Variable based on storm event

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 014 is substantially identical to Outfalls 3745, 3752, 3753, 3756, 3757, 3758, 3759 and 3773. Discharge data from Outfall 014 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^(a,b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chromium, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) - 6.0 S.U.; pH (Maximum) – 9.0 (S.U.); TSS – 100 mg/L; TPH – 15 mg/L; Dissolved Copper – 14 µg/L.

Total Petroleum Hydrocarbons Requirements.

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended

Metals and Total Hardness Requirements:

- c. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- d. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- e. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 014.

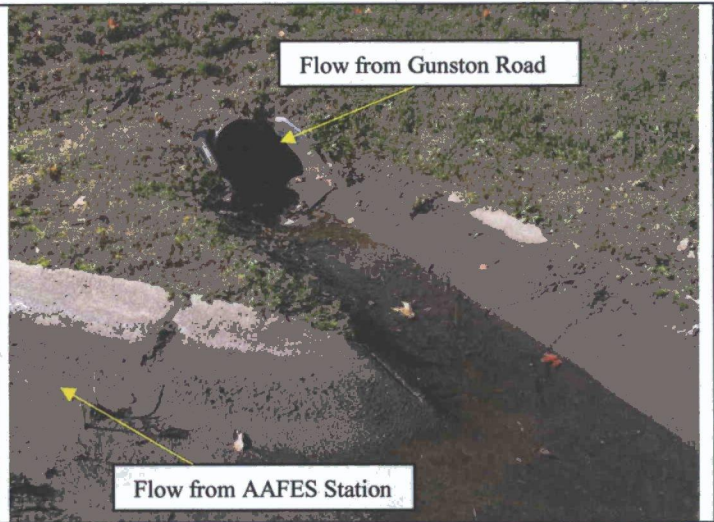


Photo 2. Flow from Gunston Road which co-mingles with flow from Outfall 014 (Photo 1) before entering a stormwater retention basin which ultimately discharges to a heavily wooded area adjacent to Gorgas Road.



Photo 3. Drainage area for Outfall 014.



Photo 4. Drainage area for Outfall 014.

Outfall 015
16th Street Storage Area (Base Operations)

Substantially Identical Outfalls:

1611, 1636, 1696, 2176, 2941, 5818, 5889, and 5892

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

The 16th Street Storage Area houses a number of installation support activities to include fueling and salt storage. Stormwater flows from the support activity area to a heavily wooded area via a grassy swale eventually daylighting via Outfall 015 at an unnamed tributary to Accotink Creek. Access to the outfall is limited and should be considered a safety risk to staff or contractors responsible for sample collection from this outfall. As such, staff recommended that the outfall location be moved to and are just beyond the riprap located at the end of the grassy swale prior to entering the wooded area. There are no industrial activities that take place between the proposed monitoring location and the actual discharge point that would impact stormwater quality.

Outfall 015 and the associated drainage area were observed by staff during a site visit conducted on September 17, 2013. According to the permit application, the drainage area is comprised of approximately 70.3 acres with 12.9 acres being considered impervious. Ten (10) percent of the drainage area is considered to be associated with industrial activity.

See Page 76 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4212, 4959, 4911, 4952, 4953, 5541, 5812, 7538, and 7542. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 015 and its substantially identical outfalls is that associated with vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations (SIC Code 4212). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Codes 40, 41, 42, 43, and 5171 (Land Transportation and Warehousing)

Discharges from land transportation and warehousing facilities, specifically SIC Codes 40, 41, 42, 43, and 5171, are covered under Sector P of the SWGP. Activities addressed under this sector vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations. Because the stormwater discharges from Outfall 015 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector P of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

It should be noted that application materials indicate SIC Code 4212 as being associated with debris removal/garbage collection. However in accordance with OSHA, SIC Code 4212 is assigned to local trucking without storage. Staff has applied permit requirements based on the actual SIC Code provided and not on an activity associated with that SIC Code.

➤ **Secondary Industrial Activities**

SIC Code 4911 (Electric Services)

Activities addressed under this SIC Code include establishments engaged in the generation, transmission, and/or distribution of electric energy for sale. It is staff's understanding that the facility is not engaged in the generation, transmission, and/or distribution of electric energy for sale. Additionally, while this SIC Code is addressed under Sector O of the SWGP, the requirements listed under this section apply to stormwater discharges from steam electric power generating facilities using coal, natural gas, oil, nuclear energy, etc. to produce a steam source, including coal handling areas. Based on site reviews conducted during the drafting of the permit, it is staff's professional judgement that no monitoring is warranted for this source.

SIC Code 4952 (Sewerage Systems)

Activities addressed under this SIC Code include the collection and disposal of wastes conducted through a sewer system, including such treatment processes as may be provided. Municipal operations such as this are not provided coverage under this industrial discharge permit.

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 015 is to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

SIC Code 4959 (Sanitary Services, Not Elsewhere Classified)

Activities addressed under this SIC Code include snow plowing, street sweeping, and vacuuming of airport runways. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's understanding that the fueling station within the drainage area is for government vehicle use and is not engaged in the selling of gasoline. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, staff believes that the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from this activity.

SIC Code 5812 (Eating Places)

Activities addressed under this SIC Code include establishments primarily engaged in the retail sale of prepared food and drinks for on-premise or immediate consumption. As noted above, this SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. As such, it is staff's professional judgement that additional monitoring is not warranted for this source.

SIC Code 7538 (General Automotive Repair Shops)

Activities addressed under this SIC Code include automotive and engine repair shops. Maintenance activities are conducted under cover, however, there is potential for vehicles and aircraft awaiting service to release pollutants and therefore impact stormwater quality. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with air transportation facilities. Staff believes the monitoring proposed above for TSS and TPH sufficiently addresses any potential concerns with stormwater runoff from these activities.

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. As noted above, discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. This SIC Code is being applied to vehicle washing discharges from a fire station located within the drainage area. Vehicle washing discharges enter the curb and gutter system without any form of treatment and are ultimately discharged via Outfall 015. As such, it is staff's professional judgement that the monitoring established by the *General VPDES Permit for Vehicle Wash and Laundry Facilities* for flow rates less than or equal to 5,000 gallons per day be applied at Outfall 015. A monthly average and daily maximum Oil and Grease (O&G) limit of 15 mg/L and a monthly average and daily maximum TSS limit of 60 mg/L is proposed.

However, information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates a new fire station is being constructed across the street from the station's current location. The new station will have floor drains connected to sanitary which will remove this waste stream from the discharge from Outfall 015. While no time frame was provided for the construction, it is staff's professional judgement that monitoring for O&G and TSS without limitation be implemented with this reissuance given this waste stream will cease. While the *General VPDES Permit for Vehicle Wash and Laundry Facilities* as applied to this outfall would require an annual monitoring frequency, a semi-annual (1/6M) monitoring frequency is proposed to provide consistency with other monitoring frequencies within this permit.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Copper, Iron, Lead, Magnesium, and Manganese.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates the need for an average monthly chromium limit of 14 µg/L (Attachment 9.j). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 14 ug/L, the 2x acute criteria action level is 28 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 6.9 µg/L (Attachment 9.j). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 6.9 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates the need for an average monthly lead limit of 8.2 µg/L (Attachment 9.j). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 8.2 ug/L, the 2x acute criteria action level is 16 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 015 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Chloride, Total Dissolved Solids, and Specific Conductance:

A salt storage dome is maintained within the drainage area to Outfall 015 to provide for maintenance of paved surfaces during winter months. As such, the stock pile of salt is not exposed to stormwater. However, residual salt from loading and unloading activities would have the potential to be exposed to stormwater and/or snow melt conditions and thereby impact the discharge from Outfall 015. As such, it is staff's professional judgement that monitoring for chloride, total dissolved solids, and specific conductance be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with monitoring frequencies established elsewhere within this permit. Samples for chloride, total dissolved solids, and specific conductance shall be conducted within the semi-annual period during times when salt movements are occurring. That is, sampling shall be conducted during January 1 – June 30 and July 1 – December 31 when salt movements are occurring and/or salt is being applied.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 015 (16th Street Storage Area Base Operations)

Average Flow: Variable based on storm event

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 015 is substantially identical to Outfalls 1611, 1636, 1696, 2176, 2941, 5818, 5889, and 5892. Discharge data from Outfall 015 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3,4	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^(a,b)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Oil and Grease	1,4	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chloride ^(d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Dissolved Solids (TDS) ^(d)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Specific Conductance ^(d)	1	NA	NA	NA	NL (µmhos/cm)	1/6M	Grab
Total Nitrogen ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(f)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(f)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(f)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chromium, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(a,c)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

- 1 Professional judgement
- 2 9VAC25-151-70
3. 9VAC25-151-230
4. 9VAC25-194

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Stormwater Monitoring Requirements: Outfall 015 (16th Street Storage Area Base Operations) – Continued

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 015 is substantially identical to Outfalls 1611, 1636, 1696, 2176, 2941, 5818, 5889, and 5892. Discharge data from Outfall 015 may be submitted to represent these outfalls.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L; Dissolved Chromium – 28 µg/L; Dissolved Copper – 14 µg/L; Dissolved Lead – 16 µg/L.

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended

Metals and Total Hardness Requirements:

- c. Samples for metals and hardness shall be collected concurrently.

Chloride, Total Dissolved Solids, and Specific Conductance Requirements

- d. Samples for chloride, total dissolved solids, and specific conductance shall be collected during the winter months associated with the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when salt movements are occurring and/or salt is being applied.

Nutrient Requirements:

- e. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and $\text{NO}_2 + \text{NO}_3$ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- f. Samples shall be collected during each of the first four semi-annual monitoring periods

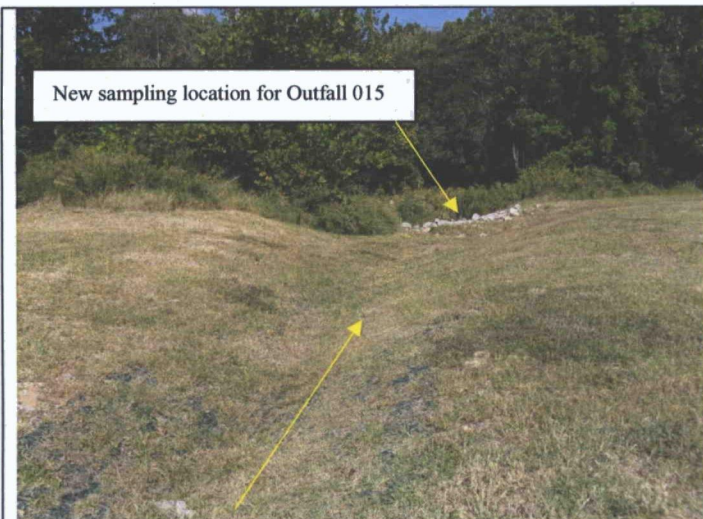


Photo 1. Relocated sampling location for Outfall 015. Flow is in the direction of the arrow discharging just beyond the riprap to a heavily wooded area.



Photo 2. Flow from drainage area follows a grassy swale with discharge at the location shown in Photo 1. Flow is in the direction of the arrow.



Photo 3. Drainage area for Outfall 015.

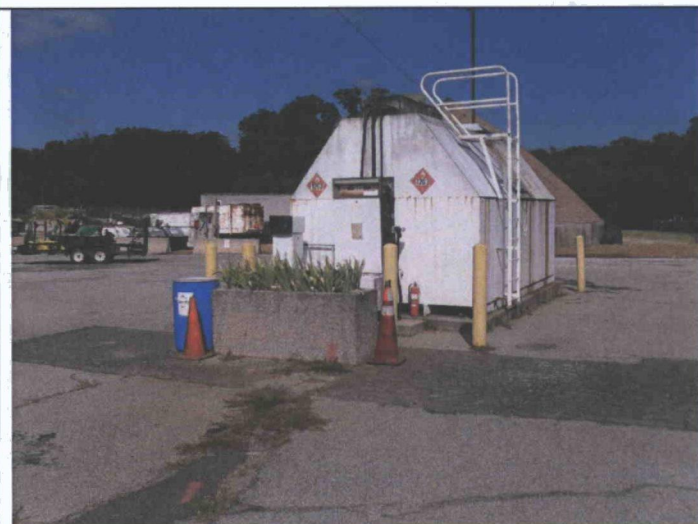


Photo 4. Fueling area located within drainage area for Outfall 015.



Photo 5. Salt dome located within drainage area for Outfall 015.



Photo 6. Drainage area for Outfall 015.

Outfall 016
Dogue Creek Marina

Substantially Identical Outfalls:
4467, 4469, and 4474

Discharge Location:
Dogue Creek

Drainage Area Discussion:

Dogue Creek Marina houses personal watercraft. Outfall 016 has the potential to be impacted by support activities such as maintenance and repair, fueling, sanding, and painting. Stormwater flows from the support activity area via a grassy swale with discharge to Outfall 016.

Outfall 016 and the associated drainage area were observed by staff during a site visit conducted on October 24, 2013. According to the permit application, the drainage area is comprised of approximately 3.0 acres with 0.6 acres being considered impervious. Thirty-four (34) percent of the drainage area is considered to be associated with industrial activity.

See Pages 80 - 81 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4493. The primary industrial activity with the potential to impact stormwater quality at Outfall 016 and its substantially identical outfalls is that associated with marinas (SIC Code 4493). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4493 (Marinas)

Discharges from water transportation facilities, specifically SIC Codes 4412 – 4499, are covered under Sector Q – Water Transportation, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include vehicle (vessel) maintenance shops or equipment cleaning operations. Because the stormwater discharges from Outfall 016 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector Q of the SWGP for Total Suspended Solids (TSS), Total Recoverable Copper, and Total Recoverable Zinc be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS, 18 µg/L is proposed for Total Recoverable Copper and 120 µg/L is proposed for Total Recoverable Zinc. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Copper, Iron, Lead, Magnesium, Manganese, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.k). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 016. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 14 µg/L (Attachment 9.k). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 14 ug/L, the 2x acute criteria action level is 28 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.k). While a limit is not warranted, lead was noted as being present in the discharge from Outfall 016. As such, it is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.k). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 016. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 016 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 016 (Dogue Creek Marina)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 016 is substantially identical to Outfalls 4467, 4469, and 4474. Discharge data from Outfall 016 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chromium, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Zinc, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/6M = Once every six months.

1. Professional judgement

NA = Not applicable.

2. 9VAC25-151-70

NL = No limit; monitor and report.

3. 9VAC25-151-240

S.U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) 9.0 S.U., TSS – 100 mg/L; Dissolved Copper - 28 µg/L; Total Recoverable Copper – 18 µg/L; Dissolved Lead - 13 µg/L; Total Recoverable Zinc – 120 µg/L.

Metals and Total Hardness Requirements:

- b. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

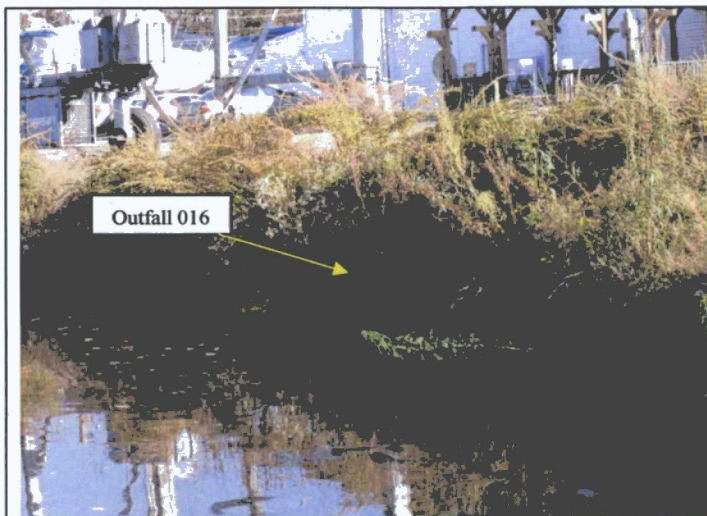


Photo 1. Outfall 016.



Photo 2. Drainage swale to Outfall 016. Stormwater flow is in the direction of the arrow.



Photo 3. Used oil area within drainage area for Outfall 016.



Photo 4. Close-up of the ballast shown in Photo 3 with petroleum product on exterior.



Photo 5. Unmarked drums located within drainage area of Outfall 016.



Photo 6. Open container of unknown product within drainage area of Outfall 016.



Photo 7. Boat storage area within drainage area of Outfall 016.



Photo 8. Bottle of mineral spirits left at boat storage area which is within the drainage area of Outfall 016.



Photo 8. Maintenance activities (sanding) taking place within drainage area of Outfall 016.

Outfall 017

Building 1809 Recycling Center and Compost Yard

Substantially Identical Outfalls:

None

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

Mulching and composting activities taking place within the drainage area to Outfall 017 have the potential to impact stormwater quality discharging from the outfall. Stormwater runoff from the recycling center flows towards the curb and gutter system associated with Pohick Road and would enter the installation's Municipal Separate Storm Sewer System (MS4).

Outfall 017 and the associated drainage area were observed by staff during a site visit conducted on October 30, 2013. According to the permit application, the drainage area is comprised of approximately 1.4 acres none of which is considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Pages 85 - 87 of this attachment for photos taken during the site visit.

Industrial Activity Discussion: Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. Discharges from SIC Code 4953 (refuse systems) are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. However, based on site reviews conducted during the drafting of the permit, staff noted that the primary industrial activities with the potential to impact stormwater quality at Outfall 017 are those associated with mulching and composting. As such, it is staff's professional judgement that more appropriate SIC Codes for this outfall are SIC Code 24991303 (mulch, wood, and bark facilities) and SIC Code 2875 (composting facilities).

➤ **Primary Industrial Activity**

SIC Code 24991303 (Mulch, Wood, and Bark Facilities)

Discharges from mulch, wood, and bark facilities, specifically SIC Code 24991303, are covered under Sector A – Timber Products Facilities, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include mulch, wood, and bark facilities, including mulch dyeing operations. Because the stormwater discharges from Outfall 017 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector A of the SWGP for Total Suspended Solids (TSS) and Biochemical Oxygen Demand (BOD₅) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 30 mg/L is proposed for BOD₅. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

➤ **Secondary Industrial Activities**

SIC Code 2875 (Fertilizers, Mixing Only)

Discharges from composting facilities, specifically SIC Code 2875, are covered under Sector C – Chemical and Allied Products Manufacturing, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include composting. Because the stormwater discharges from Outfall 017 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector C of the SWGP for Total Suspended Solids (TSS), Biochemical Oxygen Demand (BOD₅), Chemical Oxygen Demand (COD), Ammonia (as N), Total Nitrogen, and Total Phosphorus be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS, 30 mg/L is proposed for BOD₅, 120 mg/L is proposed for COD, 2.4 mg/L is proposed for Ammonia (as N), 2.2 mg/L is proposed for Total Nitrogen, and 2.0

mg/L is proposed for Total Phosphorus. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Kjeldahl Nitrogen, Nitrate+Nitrite):

In support of the nutrient monitoring required by Sector C of the SWGP, it is staff's professional judgement to include monitoring and reporting for Total Kjeldahl Nitrogen and Nitrate+Nitrite. A semi-annual monitoring frequency (1/6M) is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 017 (Building 1809 Recycling Center and Compost Yard)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Biochemical Oxygen Demand (BOD ₅) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chemical Oxygen Demand (COD) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Ammonia, as N ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(a,b)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-90
3. 9VAC25-151-110

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) - 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; BOD₅ – 30 mg/L; COD – 120 mg/L; Ammonia – 2.4 mg/L; Total Nitrogen – 2.2 mg/L; and Total Phosphorus – 2.0 mg/L.

Nutrient Requirements:

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests.



Photo 1. Mulching and composting area within drainage area of Outfall 017.



Photo 2. Mulching and composting area within drainage area of Outfall 017.



Photo 3. Mulching and composting area within drainage area of Outfall 017.



Photo 4. Tub grinder at mulching and composting area.



Photo 5. Mulching and composting area within drainage area of Outfall 017.



Photo 6. Mulching and composting area within drainage area of Outfall 017.



Photo 7. Mulching and composting area within drainage area of Outfall 017.



Photo 8. Mulching and composting area within drainage area of Outfall 017.



Photo 9. Mulching and composting area within drainage area of Outfall 017.



Photo 10. Mulching and composting area within drainage area of Outfall 017.



Photo 11. Mulching and composting area within drainage area of Outfall 017.

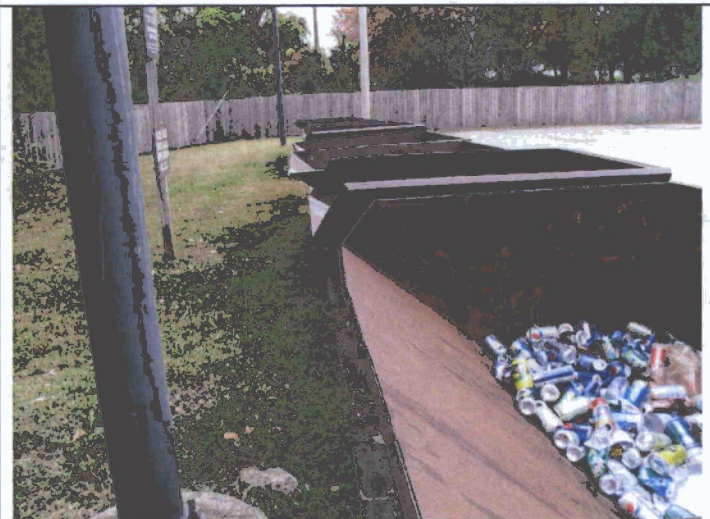


Photo 12. Recycling center.



Photo 13. Roll off dumpster located in recycling center filled with computer equipment and assorted metal. Controls were not in place to reduce the potential for stormwater contamination.



Photo 14. Roll off dumpster located in recycling center filled with computer equipment and assorted metal. Controls were not in place to reduce the potential for stormwater contamination.



Photo 15. Roll off dumpster located in recycling center filled with lawn fertilizer. Controls were not in place to reduce the potential for stormwater contamination.



Photo 16. Roll off dumpster located in recycling center filled with lawn fertilizer. Controls were not in place to reduce the potential for stormwater contamination.

Outfall 018
300 Area – Totten Road

Substantially Identical Outfalls:

None

Discharge Location:

Gunston Cove, Unnamed Tributary

Drainage Area Discussion:

The 300 Area of Fort Belvoir is home to a number of Department of Defense agencies including the Communications Electronics Research, Development and Engineering Center and the Night Vision Electronic Sensors Directorate Agencies within this area focus on the research and development of technologies to support the mission of the U.S. Army. Due to security measures, limited information is available for permitting decisions.

Outfall 018 and the associated drainage area were observed by staff during a site visit conducted on October 23, 2013. According to the permit application, the drainage area is comprised of approximately 7.6 acres with 1.8 acres being considered impervious. Forty-one (41) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit due to security.

Subsequent to the drafting of the permit, on July 13, 2016, Outfall 018 was grouted shut as a component of a stream restoration project. On July 14, 2016, a swale was constructed and Class II riprap was placed in a newly constructed stormwater conveyance. This work eliminated the crossing of stormwater flows into the stream located on the west side of Totten Road and, therefore, eliminated Outfall 018. The flow previously directed towards Outfall 018 will now be sampled at Outfall 019, where a junction box will be installed when the full stream restoration commences. In the meantime, flows discharge at the location of the new junction box and culvert at Outfall 019. Information on the removal of Outfall 018 is found in Attachment 12.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4911 and Major Group 34. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 018 and its substantially identical outfalls is that associated with Fabricated Metal Products, Except Machinery and Transportation Equipment (Major Group 34). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

Major Group 34 (Fabricated Metal Products, Except Machinery and Transportation Equipment)

Discharges from fabricated metal activities, specifically Major Group 34, are covered under Sector AA – Fabricated Metal Products, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include loading and unloading operations for paints, chemicals and raw materials; outdoor storage activities for raw materials, paints, empty containers, corn cob, chemicals, scrap metals; outdoor manufacturing or processing activities such as grinding, cutting, degreasing, buffing, brazing, etc.; and on-site waste disposal practices for spent solvents, sludge, pickling baths, shavings, ingots pieces, refuse and waste piles. Because the stormwater discharges from Outfall 018 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector AA of the SWGP for Total Recoverable Aluminum, Total Recoverable Copper, Total Recoverable Iron and Total Recoverable Zinc be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 750 µg/L is proposed for Total Recoverable Aluminum, 18 µg/L is proposed for Total Recoverable Copper, 1.0 mg/L is proposed for Total Recoverable Iron, and 120 µg/L is proposed for Total Recoverable Zinc. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

➤ **Secondary Industrial Activities**

SIC Code 4911 (Electric Services)

Activities addressed under this SIC Code include establishments engaged in the generation, transmission, and/or distribution of electric energy for sale. It is staff's understanding that the facility is not engaged in the generation, transmission, and/or distribution of electric energy for sale. Additionally, while this SIC Code is addressed under Sector O of the SWGP, the requirements listed under this section apply to stormwater discharges from steam electric power generating facilities using coal, natural gas, oil, nuclear energy, etc. to produce a steam source, including coal handling areas. It is staff's professional judgement that no monitoring is warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Silver, Thallium, and Tin.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion. All monitoring previously established for Outfall 018 will be now be applied to Outfall 019 due to the fact Outfall 018 has been permanently closed and flow directed to Outfall 019. Monitoring requirements for like parameters at Outfall 018 and Outfall 019 will be compared, and when applicable, the more stringent benchmark monitoring concentration will be applied.

Cadmium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.1). While a limit is not warranted, cadmium was noted as being present in the discharge from Outfall 018. As such, it is staff's professional judgement that monitoring be implemented for dissolved cadmium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.1). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 018. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.1). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates the need for an average monthly lead limit of 8.2 µg/L (Attachment 9.1). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 8.2 ug/L, the 2x acute criteria action level is 16 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.1). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 018. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Silver:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.1). While a limit is not warranted, silver was noted as being present in the discharge from Outfall 018. As such, it is staff's professional judgement that monitoring be implemented for dissolved silver with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Beryllium, Boron, Cobalt, Iron, Magnesium, Manganese, Molybdenum, Thallium, and Tin:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 018 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 018 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 018 (300 Area – Totten Road)

Monitoring requirements for Outfall 018 are now applied at Outfall 019 due to removal of Outfall 018 on July 13, 2016.

Outfall 019
300 Area – Building 322 General Lab

Substantially Identical Outfalls:

1826, 1827, 1829, 1830, 1834, 1836, 1882, 1994, 2034, 2036, 2037, 2538, 2539, and 2540

Discharge Location:

Gunston Cove, Unnamed Tributary

Drainage Area Discussion:

The 300 Area of Fort Belvoir is home to a number of Department of Defense agencies including the Communications Electronics Research, Development and Engineering Center and the Night Vision Electronic Sensors Directorate Agencies within this area focus on the research and development of technologies to support the mission of the U.S. Army. Due to security measures, limited information is available for permitting decisions.

Outfall 019 and the associated drainage area were observed by staff during a site visit conducted on October 23, 2013. According to the permit application, the drainage area is comprised of approximately 1.9 acres with 0.4 acres being considered impervious. Twenty-seven (27) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit due to security.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 8731 and 8734. The primary industrial activities taking place with the potential to impact stormwater quality at Outfall 019 and its substantially identical outfalls are associated with Commercial Physical and Biological Research and Testing Laboratories (SIC Codes 8731 and 8734, respectively).

➤ **Primary Industrial Activity**

SIC Code 8731 (Commercial Physical and Biological Research)

Activities addressed under this SIC Code include those from establishments primarily engaged in commercial physical and biological research and development on a contract or fee basis. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

SIC Code 8734 (Testing Laboratories)

Activities addressed under this SIC Code include those from establishments primarily engaged in providing testing services. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion. All monitoring previously established for Outfall 018 will be now be applied to Outfall 019 due to the fact Outfall 018 has been permanently closed and flow directed to Outfall 019. See pages 88 – 91 of Attachment 5 for discussion on stormwater data monitoring requirements for Outfall 018. Monitoring requirements for like parameters at Outfall 018 and Outfall 019 will be compared, and when applicable, the more stringent benchmark monitoring concentration will be applied.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 19.m). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 019. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 19.m). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates the need for an average monthly lead limit of 8.2 µg/L (Attachment 19.m). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 8.2 ug/L, the 2x acute criteria action level is 16 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Mercury:

An analysis of the data provided with the application indicates the need for an average monthly mercury limit of 1.1 µg/L (Attachment 19.m). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 1.1 ug/L, the 2x acute criteria action level is 2.2 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved mercury with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 19.m). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 019. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Cobalt, Iron, Magnesium, Manganese, and Molybdenum:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 019 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 019 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 019 (300 Area – Building 322 General Lab)

Average Flow: Variable based on storm event.

Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 019 is substantially identical to Outfalls 1826, 1827, 1829, 1830, 1834, 1836, 1882, 1994, 2034, 2036, 2037, 2538, 2539, and 2540. Discharge data from Outfall 019 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Aluminum, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Cadmium, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Chromium, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Iron, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Lead, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Silver, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Zinc, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

- 1 Professional judgement
- 2 9VAC25-151-70
- 3 9VAC25-151-340 (Outfall 018)

MGD = Million gallons per day.

NA = Not applicable

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31 The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements.

- The following benchmark concentrations are applicable pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L, Total Recoverable Aluminum – 750 µg/L; Dissolved Copper – 14 µg/L, Total Recoverable Copper – 18 µg/L; Total Recoverable Iron – 10 mg/L; Dissolved Lead – 16 µg/L, Dissolved Mercury – 2.2 µg/L, Total Recoverable Zinc – 120 µg/L.

Metals and Total Hardness Requirements:

- Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements.

- Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 020
300 Area – Building 324 Lab and Storage

Substantially Identical Outfalls:

1814, 1821, 1824, 1927, 1931, 1933, 1938, 1941, and 2193

Discharge Location:

Gunston Cove, Unnamed Tributary

Drainage Area Discussion:

The 300 Area of Fort Belvoir is home to a number of Department of Defense agencies including the Communications Electronics Research, Development and Engineering Center and the Night Vision Electronic Sensors Directorate Agencies within this area focus on the research and development of technologies to support the mission of the U.S. Army. Due to security measures, limited information is available for permitting decisions.

Outfall 020 was observed by staff during a site visit conducted on October 23, 2013. According to the permit application, the drainage area is comprised of approximately 5.0 acres with 0.6 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit due to security.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 8731 and 8734. The primary industrial activities taking place with the potential to impact stormwater quality at Outfall 019 and its substantially identical outfalls are associated with Commercial Physical and Biological Research and Testing Laboratories (SIC Codes 8731 and 8734, respectively).

➤ **Primary Industrial Activity**

SIC Code 8731 (Commercial Physical and Biological Research)

Activities addressed under this SIC Code include those from establishments primarily engaged in commercial physical and biological research and development on a contract or fee basis. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

SIC Code 8734 (Testing Laboratories)

Activities addressed under this SIC Code include those from establishments primarily engaged in providing testing services. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Iron, Magnesium, Manganese, and Mercury.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Mercury:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 19.n). While a limit is not warranted, mercury was noted as being present in the discharge from Outfall 020. As such, it is staff's professional judgement that monitoring be implemented for dissolved mercury with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 020 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 020 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 020 (300 Area – Building 324 Lab and Storage)

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 020 is substantially identical to Outfalls 1814, 1821, 1824, 1927, 1931, 1933, 1938, 1941, and 2193. Discharge data from Outfall 020 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Mercury, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable. pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U. , TSS – 100 mg/L

Metals and Total Hardness Requirements:

- b. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- c Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 021
300 Area – Building 324 Night Vision

Substantially Identical Outfalls:

1728, 1798, 1801, 1803, 1806, 1817, 2182, 2184, and 2185

Discharge Location:

Gunston Cove, Unnamed Tributary

Drainage Area Discussion:

The 300 Area of Fort Belvoir is home to a number of Department of Defense agencies including the Communications Electronics Research, Development and Engineering Center and the Night Vision Electronic Sensors Directorate Agencies within this area focus on the research and development of technologies to support the mission of the U.S. Army. Due to security measures, limited information is available for permitting decisions.

Outfall 021 was observed by staff during a site visit conducted on October 23, 2013. According to the permit application, the drainage area is comprised of approximately 4.1 acres with 0.7 acres being considered impervious. Forty-one (41) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit due to security.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 8731 and 8734. The primary industrial activities taking place with the potential to impact stormwater quality at Outfall 021 and its substantially identical outfalls are associated with Commercial Physical and Biological Research and Testing Laboratories (SIC Codes 8731 and 8734, respectively).

➤ **Primary Industrial Activity**

SIC Code 8731 (Commercial Physical and Biological Research)

Activities addressed under this SIC Code include those from establishments primarily engaged in commercial physical and biological research and development on a contract or fee basis. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

SIC Code 8734 (Testing Laboratories)

Activities addressed under this SIC Code include those from establishments primarily engaged in providing testing services. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Cobalt, Iron, Magnesium, and Manganese.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 19.o). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 021. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Cobalt, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 021 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 021 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 021 (300 Area – Building 305 Night Vision)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 021 is substantially identical to Outfalls 1728, 1798, 1801, 1803, 1806, 1817, 2182, 2184, and 2185. Discharge data from Outfall 021 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chromium, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Metals and Total Hardness Requirements:

- b. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 022
300 Area – Marina

Substantially Identical Outfalls:

1810, 1886, 1889, and 1892

Discharge Location:

Gunston Cove

Drainage Area Discussion:

The 300 Area of Fort Belvoir is home to a number of Department of Defense agencies including the Communications Electronics Research, Development and Engineering Center and the Night Vision Electronic Sensors Directorate Agencies within this area focus on the research and development of technologies to support the mission of the U.S. Army. Due to security measures, limited information is available for permitting decisions.

Outfall 022 was observed by staff during a site visit conducted on October 23, 2013. According to the permit application, the drainage area is comprised of approximately 1.6 acres with 0.4 acres being considered impervious. Sixty-seven (67) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit due to security.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4493 and 8731. The primary industrial activities taking place with the potential to impact stormwater quality at Outfall 022 and its substantially identical outfall is associated with marinas (SIC Code 4493). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4493 (Marinas)

Discharges from water transportation facilities, specifically SIC Codes 4412 – 4499, are covered under Sector Q – Water Transportation, of the *General VPDES Permit for Stormwater Discharges Associated with Industrial Activity* (SWGP). Activities addressed under this sector include vehicle (vessel) maintenance shops or equipment cleaning operations. Because the stormwater discharges from Outfall 022 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector Q of the SWGP for Total Suspended Solids (TSS), Total Recoverable Copper, and Total Recoverable Zinc be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS, 18 µg/L is proposed for Total Recoverable Copper and 120 µg/L is proposed for Total Recoverable Zinc. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

➤ **Secondary Industrial Activity**

SIC Code 8731 (Commercial Physical and Biological Research)

Activities addressed under this SIC Code include those from establishments primarily engaged in commercial physical and biological research and development on a contract or fee basis. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Given the primary activities within the 300 Area drainage area are research and development, which are conducted inside, there is no reasonable potential to impact stormwater quality. It is staff's professional judgement that additional monitoring is not warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 022 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 022 (300 Area - Marina)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 022 is substantially identical to Outfalls 1810, 1886, 1889, and 1892. Discharge data from Outfall 022 may be submitted to represent these outfalls

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Copper, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Zinc, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are.

MGD = Million gallons per day.

1/6M = Once every six months.

1 Professional judgement

NA = Not applicable

2. 9VAC25-151-70

NL = No limit, monitor and report.

3. 9VAC25-151-240

S.U = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31 The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) - 9.0 S.U.; TSS – 100 mg/L; Total Recoverable Copper – 18 µg/L; Total Recoverable Zinc – 120 µg/L.

Metals and Total Hardness Requirements:

- b. Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements.

- c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 023
Building 1497 Warehouses

Substantially Identical Outfalls:

2753, 2755, 2766, 2769, 2781, 2796, 2949, and 2950

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

The Building 1497 Warehouse area is utilized by contractors for various support activities on the installation. Outside storage of items has the reasonable potential to impact stormwater quality discharging from Outfall 023.

Outfall 023 and the associated drainage area were observed by staff during a site visit conducted on October 23, 2013. According to the permit application, the drainage area is comprised of approximately 1.1 acres with 0.2 acres being considered impervious. Twenty-four (24) percent of the drainage area is considered to be associated with industrial activity.

See Page 109 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4955. However, the SIC Code provided in the application is not a valid SIC Code recognized by the Occupational Safety and Health Administration (OSHA). Rather SIC Code 4955 is specific to the Securities and Exchange Commission (SEC), specifically, the Division of Corporation Finance, as a basis for assigning review responsibility for a company's filings. Within the SEC framework, SEC-Specific Industry 4955 is associated with Hazardous Waste Management.

Based on site reviews conducted during the drafting of the permit, staff concurs that the primary industrial activity with the potential to impact stormwater quality at Outfall 023 and its substantially identical outfalls is that associated with hazardous waste storage and management. A more appropriate SIC Code for this outfall, and its substantially identical outfall, is 4953 – Refuse Systems. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 023 is to address potential stormwater contamination associated with hazardous waste storage and management.

In accordance with the SWGP, activities addressed under Sector K include those associated with hazardous waste treatment, storage, or disposal facilities (TSDFs). Because the stormwater discharges from Outfall 023 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector K of the SWGP for Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), Total Organic Carbon (TOC), Total Recoverable Arsenic, Total Recoverable Cadmium, Total Recoverable Lead, Total Recoverable Magnesium, Total Recoverable Mercury, Total Recoverable Selenium, Total Recoverable Silver and Total Cyanide be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, the following benchmark concentrations are proposed: Total Suspended Solids (TSS) – 100 mg/L, Total Kjeldahl Nitrogen (TKN) – 1.5 mg/L, Total Organic Carbon (TOC) – 110 mg/L, Total Recoverable Arsenic – 50 µg/L, Total Recoverable Cadmium – 2.1 µg/L, Total Recoverable Lead – 120 µg/L, Total Recoverable Magnesium – 64 µg/L, Total Recoverable Mercury – 1.4 µg/L, Total Recoverable Selenium – 5.0 µg/L, Total Recoverable Silver – 3.8 µg/L, and Total Cyanide – 22 µg/L. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, and Nickel.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 16 µg/L (Attachment 9.p). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 16 ug/L, the 2x acute criteria action level is 32 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.p). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved copper with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Lead:

An analysis of the data provided with the application indicates the need for an average monthly lead limit of 8.2 µg/L (Attachment 9.p). As noted above, decision criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 8.2 ug/L, the 2x acute criteria action level is 16 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved lead with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Mercury:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.p). While a limit is not warranted, mercury was noted as being present in the discharge from Outfall 023. As such, it is staff's professional judgement that monitoring be implemented for dissolved mercury with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Nickel:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.p). While a limit is not warranted, nickel was noted as being present in the discharge from Outfall 023. As such, it is staff's professional judgement that monitoring be implemented for dissolved nickel with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Aluminum, Barium, Boron, Cobalt, Iron, Magnesium and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted, except for Magnesium which is required by Sector K of the SWGP.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 023 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 023 (Building 1497 – Warehouses)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 023 is substantially identical to Outfalls 2753, 2755, 2766, 2769, 2781, 2796, 2949, and 2950. Discharge data from Outfall 023 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Organic Carbon (TOC) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Arsenic, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Cadmium, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Chromium, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Magnesium, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Nickel, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Selenium, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Silver, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Cyanide, Total ^(a)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab

The basis for the limitations codes are

MGD = Million gallons per day.

1/6M = Once every six months.

1 Professional judgement

NA = Not applicable.

2 9VAC25-151-70

NL = No limit; monitor and report.

3. 9VAC25-151-180

S.U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TKN – 1.5 mg/L; TOC – 110 mg/L; Total Recoverable Arsenic – 50 µg/L; Total Recoverable Cadmium – 2.1 µg/L; Dissolved Chromium – 32 µg/L; Dissolved Copper - 14 µg/L; Dissolved Lead - 16 µg/L; Total Recoverable Lead – 120 µg/L; Total Recoverable Magnesium – 64 µg/L; Total Recoverable Mercury – 1.4 µg/L; Total Recoverable Selenium – 5.0 µg/L; Total Recoverable Silver – 3.8 µg/L; Total Cyanide – 22 µg/L.

Metals and Total Hardness Requirements:

- b Samples for metals and hardness shall be collected concurrently.

Nutrient Requirements:

- c Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 023.



Photo 2. Drainage area of Outfall 023.



Photo 3. Materials in drainage area of Outfall 023.



Photo 4. Materials in drainage area of Outfall 023.



Photo 5. Materials in drainage area of Outfall 023.



Photo 6. Materials in drainage area of Outfall 023.

Outfall 024
Aerospace Data Facility (SW)

Substantially Identical Outfalls:

5203, 5220, 5225, 5232, 5242, 5274, and 5280

Discharge Location:

Dogue Creek, Unnamed Tributary

Drainage Area Discussion:

The Aerospace Data Facility (ADF) is a satellite ground station responsible for the command and control of reconnaissance satellites involved in the collection of intelligence information. Due to security measures, additional information is limited for permitting decisions.

Outfall 024 and the associated drainage area were observed by staff during a site visit conducted on June 17, 2014. According to the permit application, the drainage area is comprised of approximately 6.8 acres with 1.9 acres being considered impervious. Thirty (30) percent of the drainage area is considered to be associated with industrial activity.

See Page 114 of this attachment for cleared photos provided by Fort Belvoir.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 4961. The primary industrial activities associated with this SIC Code, as defined by OSHA, with the potential to impact stormwater quality at Outfall 024 and its substantially identical outfalls are the distribution of cooled air, geothermal steam production, and steam heating systems.

➤ **Primary Industrial Activity**

SIC Code 4961 (Steam and Air Conditioning Supply)

Activities addressed under this SIC Code include distribution of cooled air, geothermal steam production, and steam heating systems. This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, uncontaminated condensate discharges from these activities are considered an allowable non-stormwater discharge in accordance with the SWGP.

As noted above, discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. This SIC Code is likely being applied to heating, ventilation, and air conditioning (HVAC) or refrigeration systems located within the drainage area of Outfall 024. In cases such as this, applying the monitoring requirements from the *General VPDES Permit for Non-Contact Cooling Water Discharges of 50,000 Gallons per Day or Less* (9VAC25-196) would be appropriate. However, information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates discharges associated with the cooling towers utilized for air conditioning are directed to the sanitary sewer system. As such, it is staff's professional judgement that additional monitoring is not warranted for this source.

➤ **Secondary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates this outfall receives flow from a hazardous waste storage area. Discharges such as this are addressed through SIC Code 4953 which is covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the supplemental information, the SIC Code being applied at Outfall 024 is to address potential stormwater contamination associated with hazardous waste storage and management.

In accordance with the SWGP, activities addressed under Sector K include those associated with hazardous waste treatment, storage, or disposal facilities (TSDFs). Because the stormwater discharges from Outfall 024 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector K of the SWGP for Total Suspended Solids (TSS), Total Kjeldahl Nitrogen (TKN), Total Organic Carbon (TOC), Total Recoverable Arsenic, Total Recoverable Cadmium, Total Recoverable Lead, Total Recoverable Magnesium, Total Recoverable Mercury, Total Recoverable Selenium, Total Recoverable Silver and Total Cyanide be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, the following benchmark concentrations are proposed: Total Suspended Solids (TSS) – 100 mg/L, Total Kjeldahl Nitrogen (TKN) – 1.5 mg/L, Total Organic Carbon (TOC) – 110 mg/L, Total Recoverable Arsenic – 50 µg/L, Total Recoverable Cadmium – 2.1 µg/L, Total Recoverable Lead – 120 µg/L, Total Recoverable Magnesium – 64 µg/L, Total Recoverable Mercury – 1.4 µg/L, Total Recoverable Selenium – 5.0 µg/L, Total Recoverable Silver – 3.8 µg/L, and Total Cyanide – 22 µg/L. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) are necessary.

Stormwater Data Screening:

Stormwater monitoring data obtained from the permit application has been reviewed and determined to be suitable for evaluation. The following pollutants require a wasteload allocation analysis: Aluminum, Barium, Boron, Chromium, Copper, Iron, Magnesium, and Manganese.

Stormwater Data Monitoring:

9VAC25-31-220.D. requires limits be imposed where a discharge has a reasonable potential to cause or contribute to an in-stream excursion of water quality criteria. Those parameters with WLAs that are near effluent concentrations are evaluated for limits; however, VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls at this time. See Section 18.a of the Fact Sheet for additional discussion.

Chromium:

An analysis of the data provided with the application indicates no limit is necessary (Attachment 9.q). While a limit is not warranted, chromium was noted as being present in the discharge from Outfall 024. As such, it is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Copper:

An analysis of the data provided with the application indicates the need for an average monthly copper limit of 7.0 µg/L (Attachment 9.q). VA-DEQ Guidance Memo 96-001 recommends that chemical water quality-based limits not be placed on stormwater outfalls because the methodology for developing limits and the proper method of sampling is still a concern and under review by EPA. Therefore, in the interim, screening (i.e., decision) criteria are to be established at 2 times the acute criteria. Based on a calculated acute criteria of 7.0 ug/L, the 2x acute criteria action level is 14 ug/L. In order to provide consistency with terminology used within the permit, action levels will be considered equivalent to a benchmark concentration. It is staff's professional judgement that monitoring be implemented for dissolved chromium with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Exceedance of an action level (or benchmark concentration) does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

Aluminum, Barium, Boron, Iron, Magnesium, and Manganese:

There are no water quality criteria that are applicable to the aquatic life designation for the above metals. As such, limit derivation is not applicable. It is staff's professional judgement that monitoring for these parameters is not warranted, except for Magnesium which is required under Sector K of the SWGP.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 024 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Hardness:

The Water Quality Criteria for some metals are dependent on the effluent hardness (expressed as mg/L calcium carbonate). Because staff has proposed monitoring for metals, it is staff's professional judgement that hardness monitoring also be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 024 (Aerospace Data Facility – SW)

Average Flow Variable based on storm event.

Effective Dates During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 024 is substantially identical to Outfalls 5203, 5220, 5225, 5232, 5242, 5274, and 5280 Discharge data from Outfall 024 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Organic Carbon (TOC) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(a)	1,2,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Arsenic, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Cadmium, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Chromium, Dissolved ^(b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Copper, Dissolved ^(a,b)	1	NA	NA	NA	NL (µg/L)	1/6M	Grab
Lead, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Magnesium, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Mercury, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Selenium, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Silver, Total Recoverable ^(a,b)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab
Hardness, Total (as CaCO ₃) ^(b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Cyanide, Total ^(a)	1,3	NA	NA	NA	NL (µg/L)	1/6M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day

1/6M = Once every six months

1. Professional judgement

NA = Not applicable.

2. 9VAC25-151-70

NL = No limit, monitor and report

3. 9VAC25-151-180

S.U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31 The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L, TKN – 1.5 mg/L; TOC – 110 mg/L; Total Recoverable Arsenic – 50 µg/L; Total Recoverable Cadmium – 2.1 µg/L; Dissolved Copper - 14 µg/L; Total Recoverable Lead – 120 µg/L; Total Recoverable Magnesium – 64 µg/L; Total Recoverable Mercury – 1.4 µg/L; Total Recoverable Selenium – 5.0 µg/L; Total Recoverable Silver – 3.8 µg/L; Total Cyanide – 22 µg/L

Metals and Total Hardness Requirements:

- b Samples for metals and hardness shall be collected concurrently

Nutrient Requirements:

- c Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods
- d. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 024.



Photo 2. Downstream of Outfall 024. Flow is in the direction of the arrow.

Outfall 025
Meade Road Contractor Lot

Substantially Identical Outfalls:

3345, 3346, and 3348

Discharge Location:

Mason Run

Drainage Area Discussion:

The Meade Road Contractor Lot is a laydown area utilized by contractors for various support activities on the installation. Materials noted during the site visit conducted on November 14, 2013, included steam pipe insulation, concrete, rebar, open bags of perlite loose fill masonry insulation, soil, paint cans and asphalt. Outside storage of materials such as these has the reasonable potential to impact stormwater quality discharging from Outfall 025.

Outfall 025 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. According to the permit application, the drainage area is comprised of approximately 3.7 acres with 3.6 acres being considered impervious. Ninety-seven (97) percent of the drainage area is considered to be associated with industrial activity.

See Pages 118 – 120 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 025 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 025 to address potential stormwater contamination from an area that could be classified as an open dump, as well as SWMUs.

Sector L of the SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 025 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Total Petroleum Hydrocarbons (TPH):

At the request of the permittee, monitoring for TPH shall also be implemented with this issuance. A benchmark concentration of 15 mg/L, which is consistent with TPH monitoring found elsewhere within the permit, shall be established with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 025 (Mead Road Contractor Lot)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 025 is substantially identical to Outfalls 3345, 3346, and 3348. Discharge data from Outfall 025 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons ^(a,b)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement

2. 9VAC25-151-70

3. 9VAC25-151-190

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

Total Nitrogen = The sum of

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements:

b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended.

Nutrient Requirements:

c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.

d. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Debris and materials within drainage area of Outfall 025.



Photo 2. Debris and materials within drainage area of Outfall 025.



Photo 3. Debris and materials within drainage area of Outfall 025.

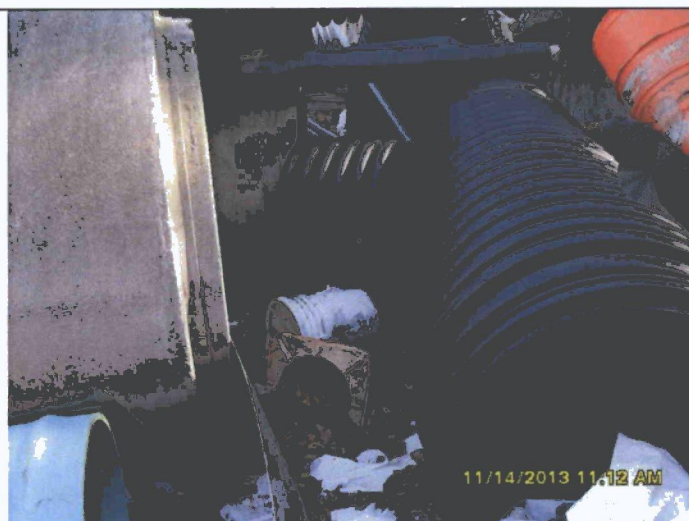


Photo 4. Debris and materials within drainage area of Outfall 025.



Photo 5. Debris and materials within drainage area of Outfall 025.



Photo 6. Debris and materials within drainage area of Outfall 025.



Photo 7. Debris and materials within drainage area of Outfall 025.



Photo 8. Debris and materials within drainage area of Outfall 025.



Photo 9. Debris and materials within drainage area of Outfall 025.



Photo 10. Debris and materials within drainage area of Outfall 025.



Photo 11. Debris and materials within drainage area of Outfall 025.



Photo 12. Debris and materials within drainage area of Outfall 025.



Photo 13. Debris and materials within drainage area of Outfall 025.



Photo 14. Debris and materials within drainage area of Outfall 025.



Photo 15. Debris and materials within drainage area of Outfall 025.



Photo 16. Debris and materials within drainage area of Outfall 025.



Photo 17. Debris and materials within drainage area of Outfall 025.



Photo 18. Debris and materials within drainage area of Outfall 025.

Outfall 026
A08 and A09 (Markham School)

Substantially Identical Outfalls:

350, 377, and 584

Discharge Location: Dogue Creek, Unnamed Tributary

Drainage Area Discussion:

The A08 and A09 areas are associated with two closed landfills.

Outfall 026 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. According to the permit application, the drainage area is comprised of approximately 7.6 acres with 0.9 acres being considered impervious. Ninety-four (94) percent of the drainage area is considered to be associated with industrial activity.

See Page 124 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 026 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 026 to address potential stormwater contamination from areas associated with two closed landfills.

In accordance with Sector L of the SWGP, landfills (including landfills in "post-closure care") that have been properly closed and capped in accordance with 9VAC20-81-160 and 9VAC20-81-170 and have no significant materials exposed to stormwater do not require coverage under the SWGP. Additionally, landfills closed in accordance with regulations or permits in effect prior to December 21, 1988, do not require coverage under the SWGP, unless significant materials are exposed to stormwater. Based on site reviews conducted during the drafting of the permit, staff did not note the presence of significant materials are exposed to stormwater.

Information provided by Fort Belvoir subsequent to the application submittal indicates the landfills associated with Outfall 026 have been closed. The George Washington Village Landfill (A08), is an inactive sanitary and construction debris landfill approximately 8.5 acres in size, located directly east of Mount Vernon Road, west of Dogue Creek, and north of A09. The site was in operation from the 1930s until 1956 and was closed with a soil cover at least two feet thick. Markham School Landfill (A09), is an inactive sanitary landfill approximately 15 acres in size, located directly east of Mount Vernon Road, west of Dogue Creek, and south of A08. A09 was in operation from the 1930s until 1956 and was closed with a soil cover of at least two feet thick. As such, it's staff's professional judgement that stormwater monitoring requirements associated with Sector L of the SWGP are not applicable.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 026 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 026 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 026 (A08 and A09 – Markham School)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 026 is substantially identical to Outfalls 350, 377, and 584 Discharge data from Outfall 026 may be submitted to represent these outfalls

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31 The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a The following benchmark concentrations are applicable. pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Nutrient Requirements:

- b Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 026.



Photo 2. Drainage swale from school area.

Outfall 027
A02 (Theote Landfill)

Substantially Identical Outfalls:

None

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

The A02 area is associated with a closed landfill.

Outfall 027 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. According to the permit application, the drainage area is comprised of approximately 1.8 acres with none of the acreage being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

See Page 128 of this attachment for photos taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 027 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 027 to address potential stormwater contamination from an area associated with a closed landfill.

In accordance with Sector L of the SWGP, landfills (including landfills in "post-closure care") that have been properly closed and capped in accordance with 9VAC20-81-160 and 9VAC20-81-170 and have no significant materials exposed to stormwater do not require coverage under the SWGP. Additionally, landfills closed in accordance with regulations or permits in effect prior to December 21, 1988, do not require coverage under the SWGP, unless significant materials are exposed to stormwater. Based on site reviews conducted during the drafting of the permit, staff did not note the presence of significant materials are exposed to stormwater.

Information provided by Fort Belvoir subsequent to the application submittal indicates the landfill associated with Outfall 027 has been closed. The Theote Road Debris Landfill was described as a four acre unlined landfill located 1,500 feet east of Theote Road and 800 feet west of Accotink Bay. The former landfill began accepting construction and demolition debris in 1978. The landfill operated under Virginia Solid Waste Permit #490 from November 1985 to October 9, 1993. According to the 1997 action plan, a closure report was prepared by Dewberry and Davis in 1990. An updated closure plan was prepared by SCS Engineers, Inc. in September 1993 to satisfy the Virginia Solid Waste Management regulations promulgated in March 1993 by DEQ. The updated closure plan which included groundwater monitoring, landfill gas and leachate collection was approved by DEQ in 1994. Closure activities were performed between March and July 1995. The final closure report was finalized in October of 1995. The landfill then went through a ten year post closure care phase which included periodic groundwater and landfill gas monitoring and inspections of the landfill. DEQ performed an inspection of the landfill in June 1996, as part of the closure approval process. As such, it's staff's professional judgement that stormwater monitoring requirements associated with Sector L of the SWGP are not applicable.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 027 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 027 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 027 (A02 – Theote Landfill)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/6M = Once every six months.

1. Professional judgement

NA = Not applicable.

2. 9VAC25-151-70

NL = No limit; monitor and report

S.U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Nutrient Requirements.

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.



Photo 1. Outfall 027.



Photo 2. Drainage area to Outfall 027.



Photo 3. Drainage area to Outfall 027.

Outfall 028
A06 (Building 2310 Landfill)

Substantially Identical Outfalls:

4264, 4269, 4270, 4338, 5643, and 5644

Discharge Location:

Dogue Creek, Unnamed Tributary

Drainage Area Discussion:

The A06 area is associated with a closed landfill.

Outfall 028 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. According to the permit application, the drainage area is comprised of approximately 15 acres with 1.5 acres being considered impervious. Twenty-six (26) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 028 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 028 to address potential stormwater contamination from an area associated with a closed landfill.

In accordance with Sector L of the SWGP, landfills (including landfills in "post-closure care") that have been properly closed and capped in accordance with 9VAC20-81-160 and 9VAC20-81-170 and have no significant materials exposed to stormwater do not require coverage under the SWGP. Additionally, landfills closed in accordance with regulations or permits in effect prior to December 21, 1988, do not require coverage under the SWGP, unless significant materials are exposed to stormwater. Based on site reviews conducted during the drafting of the permit, staff did not note the presence of significant materials are exposed to stormwater.

Information provided by Fort Belvoir subsequent to the application submittal indicates the landfill associated with Outfall 028 has been closed. The Kingman Landfill stopped receiving waste in the 1950's. The landfill received EPA no further action (NFA) approval with land use controls (LUCs) on December 7, 2012. As such, it's staff's professional judgement that stormwater monitoring requirements associated with Sector L of the SWGP are not applicable.

Based on information provided subsequent to the application, this SIC Code is also being applied at Outfall 028 to address potential stormwater contamination from Solid Waste Management Units (SWMU). Please see Section 20 of the Fact Sheet for additional discussion on SWMUs and applicable permitting requirements.

➤ **Secondary Industrial Activity**

SIC Code 4911 (Electric Services)

Activities addressed under this SIC Code include establishments engaged in the generation, transmission, and/or distribution of electric energy for sale. It is staff's understanding that the facility is not engaged in the generation, transmission, and/or distribution of electric energy for sale. Additionally, while this SIC Code is addressed under Sector O of the SWGP, the requirements listed under this section apply to stormwater discharges from steam electric power generating facilities using coal, natural gas, oil, nuclear energy, etc. to produce a steam source, including coal handling areas. Based on site reviews conducted during the drafting of the permit, it is staff's professional judgement that no monitoring is warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 028 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 028 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 028 (A06 – Building 2310 Landfill)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 028 is substantially identical to Outfalls 4264, 4269, 4270, 4338, 5643, and 5644. Discharge data from Outfall 028 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/6M = Once every six months.

1. Professional judgement

NA = Not applicable.

2. 9VAC25-151-70

NL = No limit, monitor and report.

S.U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Total Nitrogen Calculation:

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 029
A07 and A25 (Mulligan Road Landfill)

Substantially Identical Outfalls:

6007

Discharge Location:

Dogue Creek, Unnamed Tributary

Drainage Area Discussion:

The A07 and A25 areas are associated with a closed landfill.

Outfall 029 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. According to the permit application, the drainage area is comprised of approximately 2.6 acres with 0.8 acres being considered impervious. Thirty-eight (38) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 029 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 029 to address potential stormwater contamination from an area associated with a closed landfill.

In accordance with Sector L of the SWGP, landfills (including landfills in "post-closure care") that have been properly closed and capped in accordance with 9VAC20-81-160 and 9VAC20-81-170 and have no significant materials exposed to stormwater do not require coverage under the SWGP. Additionally, landfills closed in accordance with regulations or permits in effect prior to December 21, 1988, do not require coverage under the SWGP, unless significant materials are exposed to stormwater. Based on site reviews conducted during the drafting of the permit, staff did not note the presence of significant materials are exposed to stormwater.

Information provided by Fort Belvoir subsequent to the application submittal indicates the landfill associated with Outfall 029 has been closed. The Mulligan Road Landfill (A07), is located within a former troop training area, and operated as a borrow area until approximately 1978. From about 1978 until 1986, the resulting excavation was filled with construction debris (largely wood debris) generated by the demolition of World War II era barracks. Other demolition materials reportedly disposed in the landfill included asbestos covered pipe and 250-gallon residential heating oil tanks. The deepest disposal area was along the west side of the site, with a depth of approximately 20 feet. At the conclusion of the disposal activities, the area was covered with two feet of clean fill. A-25 is a forest clearing located approximately 1,500 feet southwest of the intersection of Kingman and Mulligan Roads. The 1988 Draft Phase II RCRA facility assessment (RFA) described an area in this vicinity as a historical sanitary landfill operated prior to 1940. The SWMU is approximately 8 acres in size. Disposal of concrete curb/gutter and sidewalk debris at SWMU A-25 reportedly occurred in approximately 1979 or 1980; the materials were generated by a U.S. Army Corps of Engineers project elsewhere at Fort Belvoir. The disposal area was covered with more than two feet of clean fill in the mid 1980s. As such, it's staff's professional judgement that stormwater monitoring requirements associated with Sector L of the SWGP are not applicable.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 029 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 029 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 029 (A07 and A25 – Mulligan Road Landfill)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date

Outfall 029 is substantially identical to Outfall 6007 Discharge data from Outfall 029 may be submitted to represent this outfall.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement

2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Nutrient Requirements:

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 030
A26 (Pohick Road Landfill)

Substantially Identical Outfalls:

None

Discharge Location:

Accotink Bay, Unnamed Tributary

Drainage Area Discussion:

The A26 area is associated with a closed landfill.

Outfall 030 and the associated drainage area were observed by staff during a site visit conducted on November 14, 2013. According to the permit application, the drainage area is comprised of approximately 4.2 acres with none of the acreage being considered impervious. Eighty-five (85) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit.

Industrial Activity Discussion:

Application materials indicate sources of pollutants to this outfall include those from the following SIC Code: 4953. It is staff's professional judgement that the primary industrial activity with the potential to impact stormwater quality at Outfall 030 and its substantially identical outfalls is that associated with Landfills, Land Application Sites and Open Dumps (SIC Code 4953). See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Code 4953 (Refuse Systems)

Discharges from SIC Code 4953 are covered under two different sectors of the SWGP: Sector K - Hazardous Waste Treatment, Storage, or Disposal Facilities and Sector L - Landfills, Land Application Sites and Open Dumps. Activities addressed under Sector K include facilities that treat, store, or dispose of hazardous wastes, including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Activities addressed under Sector L include waste disposal at landfills, land application sites, and open dumps that receive or have received industrial wastes, including sites subject to regulation under Subtitle D of RCRA. Based on information provided within the application, the SIC Code being applied at Outfall 030 to address potential stormwater contamination from an area associated with a closed landfill.

In accordance with Sector L of the SWGP, landfills (including landfills in "post-closure care") that have been properly closed and capped in accordance with 9VAC20-81-160 and 9VAC20-81-170 and have no significant materials exposed to stormwater do not require coverage under the SWGP. Additionally, landfills closed in accordance with regulations or permits in effect prior to December 21, 1988, do not require coverage under the SWGP, unless significant materials are exposed to stormwater. Based on site reviews conducted during the drafting of the permit, staff did not note the presence of significant materials are exposed to stormwater.

Information provided by Fort Belvoir subsequent to the application submittal indicates the landfill associated with Outfall 030 has been closed. This unit was first identified as a SWMU during the 1988 RFA. The RFA identified SWMU A-26 from historical documentation as a sanitary landfill that operated during the mid-1950s. The RFA reported that the unit was located in the southeastern part of the facility, south of Pohick Road; however, the precise location was not found during the RFA. According to the 1992 SWMU Study, SWMU A-26 was a landfill as illustrated on old installation site maps and on a post map dated March 26, 1958. As such, it's staff's professional judgement that stormwater monitoring requirements associated with Sector L of the SWGP are not applicable.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 030 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids (TSS):

Outfall 030 is located within the highly urbanized area of Fairfax County. Due to continued initiatives related to the Chesapeake Bay, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 030 (A26 – Pohick Road Landfill)

Average Flow. Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

MGD = Million gallons per day.

1/6M = Once every six months.

1. Professional judgement

NA = Not applicable.

2. 9VAC25-151-70

NL = No limit; monitor and report.

S U. = Standard units.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U., pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Nutrient Requirements:

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 031
Belvoir North – NGA Area Pond 6

Substantially Identical Outfalls:

None

Discharge Location:

Accotink Creek, Unnamed Tributary

Drainage Area Discussion:

The National Geospatial Agency (NGA) provides geospatial intelligence in support of national security. This outfall was first considered for inclusion in the installation's MS4 permit. However, upon learning the above referenced pond is treated with three products for aesthetic purposes it was determined that the outfall was not appropriate for inclusion in the MS4 permit. As such, the outfall was included in a revised industrial permit application received on March 14, 2014. Due to security measures, limited information is available for permitting decisions.

The NGA Pond and Outfall 031 were observed by staff during a site visit conducted on June 17, 2014. The primary source of water to the pond is stormwater runoff with Outfall 031 receiving the pond's overflow discharge.

According to the permit application, the drainage area is comprised of approximately 17.9 acres with 13.3 acres being considered impervious. One hundred (100) percent of the drainage area is considered to be associated with industrial activity.

No photos were taken during the site visit.

Industrial Activity Discussion:

Initial application materials did not provide information on sources of pollutants to this outfall. However, subsequent information provided by the permittee indicates sources of pollutants to this outfall include those from the following SIC Codes: 9511. Please see below for further discussion on this SIC Code and its permit applicability.

Staff was made aware of the pond treatment products during discussions with Fort Belvoir. As such, staff believes the discharge from the NGA pond warrants review. Discussion on these products, and applicable monitoring requirements, are provided in more detail below. Due to security measures, limited information is available for permitting decisions.

➤ **Primary Industrial Activity**

BlackDyeMond™

This product is marketed by its manufacturer, Airmax, Incorporated, as a pond dye that will protect a pond while enhancing natural color and beauty. According to the manufacturer's website, Black Dyemond™ creates a mirrored surface which reflects surrounding trees and natural rocky landscapes making it perfect for natural ponds in wooded areas. Additionally, the website states the product is completely natural and when used in accordance with label directions is completely safe for your fish, plants, pets and pond wildlife.

The Material Safety Data Sheet for BlackDyeMond™ was reviewed (Attachment 5 – Appendix C) and it is staff's professional judgement that whole effluent toxicity testing is not warranted because of the use of this product.

MuckAway™

This product is marketed by manufacturer, Airmax, Incorporated. According to the manufacturer's website, the beneficial aerobic bacteria in MuckAway™ are designed to quickly digest organic debris like fish waste, leaves twigs, plant decay and organic runoff that accumulate and form pond muck without harming the pond or its inhabitants. By reducing excess nutrients and muck from the pond, MuckAway™ is said to eradicate pond odors, help slow weed growth and keeps pond water clear and balanced. Additionally, the website states the product is completely natural and when used in accordance with label directions is completely safe for your fish, plants, pets and pond wildlife.

The Material Safety Data Sheet for MuckAway™ was reviewed (Attachment 5 – Appendix D) and it is staff's professional judgement that whole effluent toxicity testing is not warranted because of the use of this product.

Pond-Clear Defense™

This product is marketed by manufacturer, Airmax, Incorporated. According to the manufacturer's website, the beneficial aerobic bacteria in PondClear™ quickly go to work to consume organic debris that cause cloudy water, muck accumulation, foul pond odors and imbalanced pond water. Additionally, the website states the product is completely natural and when used in accordance with label directions is completely safe for your fish, plants, pets and pond wildlife.

The Material Safety Data Sheet for Pond-Clear Defense™ was reviewed (Attachment 5 – Appendix E) and it is staff's professional judgement that whole effluent toxicity testing is not warranted because of the use of this product.

➤ **Secondary Industrial Activity**

SIC Code 9511 (Air and Water Resource and Solid Waste Management)

Activities addressed under this SIC Code include government establishments primarily engaged in the regulation, planning, protection and conservation of air and water resources; solid waste management; water and air pollution control and prevention; flood control; drainage development; and consumption of water resources; coordination of these activities at intergovernmental levels; research necessary for air pollution abatement and control and conservation of water resources. Staff is not able to determine from the application the overall applicability of this SIC Code to the Belvoir North NGA Area Pond 6.

This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. Based on site reviews conducted during the drafting of the permit, it is staff's professional judgement that no monitoring is warranted for this source.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 031 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Total Suspended Solids:

Outfall 031 is located within the Accotink Creek watershed. Streams within the Accotink Creek watershed are substantially degraded and as such, have been listed as not supporting the aquatic life use. A benthic Total Maximum Daily Load (TMDL) study for Accotink Creek is being completed with individual permit holders within the watershed assisting with data collection efforts. TMDL development is anticipated with a target completion date of 2016. Because this outfall is located within the Accotink Creek watershed, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 031 (NGA Area Pond 6)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		<u>Monthly Average</u>	<u>Daily Maximum</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Frequency</u>	<u>Sample Type</u>
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(b)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(c)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(c)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(c)	1.2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S.U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L.

Nutrient Requirements:

- b. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- c. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 032
Belvoir North – NGA Area Pond 8

Substantially Identical Outfalls:

6209 and 6222

Discharge Location:

Accotink Creek, Unnamed Tributary

Drainage Area Discussion:

The National Geospatial Agency (NGA) provides geospatial intelligence in support of national security. Based on discussions with Fort Belvoir staff, this outfall was included in a revised industrial permit application received on March 14, 2014.

Outfall 032 and the associated drainage area were observed by staff during a site visit conducted on June 17, 2014. The outfall is associated with a small stormwater retention basin which receives stormwater runoff from a fuel delivery bay. The bay includes six 30,000 gallon fuel tanks and one 10,000 gallon fuel tank within secondary containment. During fuel deliveries, valves are closed so that stormwater does not discharge to the retention basin. Another source with potential to impact Outfall 032 is stormwater runoff from a small salt storage area.

Drainage area information was not included with the revised industrial permit application.

No photos were taken during the site visit.

Industrial Activity Discussion:

Initial application materials did not provide information on sources of pollutants to this outfall. However, subsequent information provided by the permittee indicates sources of pollutants to this outfall include those from the following SIC Codes: 4911 and 5541. Please see below for further discussion on these SIC Codes and their permit applicability. Additionally, based on the site visit, staff believes there is reasonable potential for the Outfall 032 to be impacted by the fuel delivery bay and the salt storage area. As such, these sources warrant review. Due to security measures, additional information is limited for permitting decisions.

➤ **Primary Industrial Activity**

SIC Code 4911 (Electric Services)

Activities addressed under this SIC Code include establishments engaged in the generation, transmission, and/or distribution of electric energy for sale. It is staff's understanding that the facility is not engaged in the generation, transmission, and/or distribution of electric energy for sale. Additionally, while this SIC Code is addressed under Sector O of the SWGP, the requirements listed under this section apply to stormwater discharges from steam electric power generating facilities using coal, natural gas, oil, nuclear energy, etc. to produce a steam source, including coal handling areas. Based on site reviews conducted during the drafting of the permit, it is staff's professional judgement that no monitoring is warranted for this source.

SIC Code 5541 (Gasoline Service Stations)

Activities addressed under this SIC Code include gasoline service stations primarily engaged in selling gasoline and lubricating oils. It is staff's understanding that the facility is not engaged in the selling of gasoline. Staff is not able to determine from the application the overall applicability of this SIC Code to the Belvoir North NGA Area Pond. However, the primary pollutant of concern from fuel storage and/or fueling operations would be TPH.

This SIC Code is not specifically addressed within the SWGP, as there is no industrial activity taking place as defined in 9VAC25-151-010. While this SIC Code is not specifically addressed within the SWGP, it is staff's professional judgement that monitoring for TPH be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP. With this issuance, a benchmark concentration of 15 mg/L is proposed for TPH.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 032 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

Chloride, Total Dissolved Solids, and Specific Conductance:

A salt storage dome is maintained within the drainage area to Outfall 032 to provide for maintenance of paved surfaces during winter months. As such, the stock pile of salt is not exposed to stormwater. However, residual salt from loading and unloading activities would have the potential to be exposed to stormwater and/or snow melt conditions and thereby impact the discharge from Outfall 032. As such, it is staff's professional judgement that monitoring for chloride, total dissolved solids, and specific conductance be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with monitoring frequencies established elsewhere within this permit. Samples for chloride, total dissolved solids, and specific conductance shall be conducted within the semi-annual period during times when salt movements are occurring. That is, sampling shall be conducted during January 1 – June 30 and July 1 – December 31 when salt movements are occurring and/or salt is being applied.

Total Suspended Solids:

Outfall 032 is located within the Accotink Creek watershed. Streams within the Accotink Creek watershed are substantially degraded and as such, have been listed as not supporting the aquatic life use. A benthic Total Maximum Daily Load (TMDL) study for Accotink Creek is being completed with individual permit holders within the watershed assisting with data collection efforts. TMDL development is anticipated with a target completion date of 2016. Because this outfall is located within the Accotink Creek watershed, it is staff's professional judgement that monitoring for TSS be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed. Staff also proposes a benchmark concentration of 100 mg/L to be consistent with TSS monitoring found elsewhere within this permit.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 032 (NGA Area Pond 8)

Average Flow Variable based on storm event.

Effective Dates: During the period beginning with the permit's effective date and lasting until the expiration date.

Outfall 032 is substantially identical to Outfalls 6209 and 6222. Discharge data from Outfall 032 may be submitted to represent these outfalls.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^(a,b)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Chloride ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Dissolved Solids (TDS) ^(c)	1	NA	NA	NA	NL (mg/L)	1/6M	Grab
Specific Conductance ^(c)	1	NA	NA	NA	NL (µmhos/cm)	1/6M	Grab
Total Nitrogen ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(e)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are:

1. Professional judgement
2. 9VAC25-151-70
3. 9VAC25-151-230

MGD = Million gallons per day.

NA = Not applicable.

NL = No limit; monitor and report.

S U. = Standard units.

1/6M = Once every six months.

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively)

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

- a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L

Total Petroleum Hydrocarbons Requirements:

- b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended

Chloride, Total Dissolved Solids, and Specific Conductance Requirements:

- c. Samples for chloride, total dissolved solids, and specific conductance shall be collected during the winter months associated with the semi-annual monitoring period (January 1 – June 30 and July 1 – December 31) when salt movements are occurring and/or salt is being applied

Nutrient Requirements:

- d. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.
- e. Samples shall be collected during each of the first four semi-annual monitoring periods.

Outfall 033
249th Prime Power Motor Pool (Pohick and Theote Roads)

Substantially Identical Outfalls:
To Be Determined

Discharge Location:
Accotink Bay, Unnamed Tributary

Drainage Area Discussion:
Army motor pools house tactical vehicles and equipment between operations with maintenance activities being conducted. Vehicles requiring heavy maintenance are taken off site to Fort A.P. Hill. As such, only minor maintenance is conducted on site. It is staff's professional judgement that Outfall 033 does however have the potential to be impacted by the motor pool activities within its drainage area.

Information provided by the permittee subsequent to the application submitted in March 2014 (Attachment 11) indicates that the 249th Prime Power Unit will be moving from their current location to a new location at the corner of Pohick and Theote Roads. This move is tentatively slated for 2017 to allow for construction of a new entrance to the installation. As such, the outfall as proposed in this draft is not yet in service. Once operational, the outfall associated with the new 249th Prime Power Unit location will be designated as Outfall 033.

No photos were available at the time of permit development.

Industrial Activity Discussion: This outfall was not accounted for within the application, but it the industrial activities are identical to those performed at the outfall's previous location. As such, it is staff's professional judgement that all rationale used in development of permit requirements for Outfall 010 is applicable to Outfall 033.

Application materials indicate sources of pollutants to this outfall include those from the following SIC Codes: 7538 and 7542. Activities addressed under SIC Code 7538 include general automotive repair and service as well as engine repair. While this SIC Code is not specifically addressed within the SWGP, the above activities are commonly associated with those found in Sector P – Land Transportation and Warehousing. Given the primary industrial activity with the potential to impact stormwater quality at Outfall 010 is that associated with vehicle maintenance activities, it is staff's professional judgement that the monitoring requirements found in Sector P be applied. See Section 18.a and Section 18.d of the Fact Sheet for discussion on industrial activity and the applicability of monitoring.

➤ **Primary Industrial Activity**

SIC Codes 40, 41, 42, 43, and 5171 (Land Transportation and Warehousing – as applied to SIC Code 7538)

Discharges from land transportation and warehousing facilities, specifically SIC Codes 40, 41, 42, 43, and 5171, are covered under Sector P of the SWGP. Activities addressed under this sector vehicle and equipment maintenance shops (vehicle and equipment rehabilitation, mechanical repairs, painting, fueling and lubrication) or equipment cleaning operations. Because the stormwater discharges from Outfall 033 have the potential to be impacted by the activities noted above, it is staff's professional judgement that the monitoring established in Sector P of the SWGP for Total Suspended Solids (TSS) and Total Petroleum Hydrocarbons (TPH) be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed which is consistent with the monitoring frequency established within the SWGP.

The SWGP establishes benchmark concentrations, or action levels, for parameters of concern associated with a particular sector of industrial activity. A benchmark concentration is a level above which a stormwater discharge could adversely affect receiving water quality. With this issuance, a benchmark concentration of 100 mg/L is proposed for TSS and 15 mg/L is proposed for TPH. Exceedance of a benchmark concentration does not constitute a violation of the permit and does not indicate that a violation of the Water Quality Standards has occurred; however, it does signal that modifications to the Stormwater Pollution Prevention Plan (SWPPP) may be necessary.

➤ **Secondary Industrial Activities**

SIC Code 7542 (Car Washes)

Activities addressed under this SIC Code include car and truck washing. Discharges from these types of activities are not considered stormwater and therefore, are not provided coverage under the SWGP. In cases such as this, applying monitoring requirements from the *General VPDES Permit for Vehicle Wash and Laundry Facilities* (9VAC25-194) would be appropriate. However, the facility's wash rack is connected to the sanitary sewer system and as such, additional monitoring requirements are not warranted.

Stormwater Data Screening:

Stormwater monitoring data was not available with the permit application. See Section 25.f of the Fact Sheet for additional discussion on EPA Form 2F Part VII monitoring and applicable permitting requirements.

Additional Stormwater Monitoring Requirements:

Nutrients (Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus):

Due to continued initiatives to reduce nutrients to the Chesapeake Bay, it is staff's professional judgement that nutrient monitoring at Outfall 033 be implemented with this issuance. A semi-annual monitoring frequency (1/6M), for a total of four sampling events, is proposed with this issuance. This rationale is consistent with the monitoring frequency established within the SWGP. See Section 18.c of the Fact Sheet for additional discussion.

pH:

A minimum benchmark concentration of 6.0 S.U. and a maximum benchmark concentration of 9.0 S.U. shall be implemented with this issuance. A semi-annual monitoring frequency (1/6M) is proposed.

Stormwater Monitoring Requirements: Outfall 033 (249th Prime Power Motor Pool – Pohick and Theote Roads)

Average Flow: Variable based on storm event.

Effective Dates: During the period beginning with the outfall's relocation to the expiration date, the permittee is authorized to discharge from Outfall 033. Such discharges shall be limited and monitored by the permittee as specified below.

PARAMETER	BASIS FOR LIMITS	DISCHARGE LIMITATIONS				MONITORING REQUIREMENTS	
		Monthly Average	Daily Maximum	Minimum	Maximum	Frequency	Sample Type
Flow (MGD)	NA	NL	NL	NA	NA	1/6M	Estimate
pH ^(a)	1	NA	NA	NL (S.U.)	NL (S.U.)	1/6M	Grab
Total Suspended Solids (TSS) ^(a)	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Petroleum Hydrocarbons (TPH) ^{(a), (b)}	1,3	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Nitrogen ^(c)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Calculated
Total Kjeldahl Nitrogen (TKN) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Nitrate+Nitrite (NO ₂ +NO ₃) ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab
Total Phosphorus ^(d)	1,2	NA	NA	NA	NL (mg/L)	1/6M	Grab

The basis for the limitations codes are

MGD = Million gallons per day.

1/6M = Once every six months.

1. Professional judgement

NA = Not applicable

2. 9VAC25-151-70

NL = No limit; monitor and report.

3. 9VAC25-151-230

S.U. = Standard units

1/6M = The semi-annual monitoring period shall be January 1 – June 30 and July 1 - December 31. The DMR shall be submitted no later than the 10th day of the month following the monitoring period (July 10 and January 10, respectively).

Grab = An individual sample collected over a period of time not to exceed 15-minutes.

Estimate = Reported flow is to be based on the technical evaluation of the sources contributing to the discharge.

Benchmark Concentration Requirements:

a. The following benchmark concentrations are applicable: pH (Minimum) – 6.0 S.U.; pH (Maximum) – 9.0 S.U.; TSS – 100 mg/L; TPH – 15 mg/L.

Total Petroleum Hydrocarbons Requirements:

b. Total Petroleum Hydrocarbons (TPH) is the sum of individual gasoline range organics and diesel range organics or TPH-GRO and TPH-DRO to be measured by EPA SW 846 Method 8015 for gasoline and diesel range organics, or by EPA SW 846 Methods 8260 Extended and 8270 Extended

Nutrient Requirements:

c. Total Nitrogen is the sum of Total Kjeldahl Nitrogen and NO₂+NO₃ and shall be calculated from the results of those tests during each of the first four semi-annual monitoring periods.

d. Samples shall be collected during each of the first four semi-annual monitoring periods

Safety Data Sheet

SafeTemp® ES Plus

1. Identification

PRODUCT IDENTIFIER

Product Identity SafeTemp® ES Plus
Alternate Names Deicing/Anti-icing fluid, SAE Type I

RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Intended use Aircraft Deicing
Application Method See Technical Data Sheet.

DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Company Name HOC INDUSTRIES, INC.
P.O. Box 2609,
Wichita, KS 67201-2609. USA

Contact information Telephone: +1 (800) 999-9645
Email: msds@hocindustries.com
Website: www.deicer.net

EMERGENCY TELEPHONE NUMBER PERS: (800) 633-8253

2. Hazard(s) identification

CLASSIFICATION OF SUBSTANCE OF MIXTURE

No applicable GHS categories.

LABEL ELEMENTS

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

No applicable GHS categories.

[Prevention]:

No GHS prevention statements

[Response]:

No GHS response statements

[Storage]:

No GHS storage statements

[Disposal]:

No GHS disposal statements

Safety Data Sheet

SafeTemp® ES Plus

3. Composition/information on ingredients

MIXTURE

Ingredient/Chemical Designations	Weight %	GHS Classification
Propylene Glycol CAS Number: 0000057-55-6	85-90	Not Classified
Water CAS Number: 0007732-18-5	10-15	
Enzyme Complex CAS Number: Proprietary	<1	

4. First aid measures

DESCRIPTION OF FIRST AID MEASURES

General	In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.
Inhalation	Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.
Eyes	Irrigate copiously with clean water for at least 15 minutes, holding the eyelids apart and seek medical attention.
Skin	Remove contaminated clothing. Wash skin thoroughly with soap and water or use a recognized skin cleanser.
Ingestion	If swallowed obtain immediate medical attention. Keep at rest. Do NOT induce vomiting.

MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Eye	May be slightly irritating to eyes
Skin	May be slightly irritating to skin (may include redness, drying and cracking of skin)
Inhalation	Not expected to be an inhalation hazard under normal conditions

5. Fire-fighting measures

FLAMMABILITY

Flammability Non-flammable by OSHA criteria

EXTINGUISHING MEDIA

Dry Chemical, BC/ABC or CO2

SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Hazardous decomposition: Oxides of carbon and sulfur, formaldehyde gas and thiols.

ADVICE FOR FIRE-FIGHTERS

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

SDS Revision Date: 06/02/2015

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SafeTemp® ES Plus

Evacuate area of all unnecessary personnel. Cool closed containers exposed to fire by spraying them with water. Do not allow run off water and contaminants from firefighting to enter drains or water ways.

6. Accidental release measures

PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Put on appropriate personal protective equipment (see section 8). Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

ENVIRONMENTAL PRECAUTIONS

Do not allow spills to enter drains or waterways.

Avoid breather vapors when spraying. Avoid contact with skin and eyes Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse

METHODS AND MATERIAL FOR CONTAINMENT AND CLEANING UP

Contain spillage and then collect with non-combustible absorbent material (e.g. sand, earth, vermiculite) and place in container for disposal according to local and national regulations (see section 13).

7. Handling and storage

PRECAUTIONS FOR SAFE HANDLING

Handling	Avoid contact with skin and eyes. Avoid breathing vapors and mist when spraying.
General Hygiene Advice	Wash hands before eating, drinking, or smoking. Launder contaminated clothing before reuse.

CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage	Use UV resistant containers. Handle containers carefully to prevent damage and spillage. Keep away from direct heat
Temperature Storage Limits	Minimum -45 °C (-50 °F) Maximum 60 °C (140 °F)
Incompatible materials	Strong oxidizers, strong acids and alkali metals

8. Exposure controls and personal protection

CONTROL PARAMETERS

Exposure

No established exposure limits for this product.

Carcinogen Data

No established chemicals at levels which require reporting for this product.

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

SDS Revision Date: 06/02/2015

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SafeTemp® ES Plus

EXPOSURE CONTROLS

Respiratory	No special respiratory protection is usually necessary. Breathing of mist/aerosol should be avoided. If operating conditions create high airborne concentration of this material, the use of an approved respirator is recommended.
Eyes	Safety glasses or goggles are recommended.
Skin	No special skin protection is usually necessary. Chemical resistant gloves should be worn if prolonged exposure is possible to prevent drying of skin.
Engineering Controls	No special ventilation is necessary.
Other Work Practices	Do not eat, smoke or drink where material is handled, processed or stored. Wash hands before eating, drinking, smoking or using toilet. Ensure that eyewash stations are accessible. Promptly remove soiled clothing and wash thoroughly before reuse

9. Physical and chemical properties

Appearance	Clear, orange liquid
Odor	Sweet
Odor threshold	Not Measured
pH (ASTM E70) (20°C)	7.0 – 9.0
Melting point / freezing point	< -60°C (< -76°F)
Initial boiling point and boiling range	212°F (100°C)
Flash Point	>212°F (100°C)
Evaporation rate	No Data Available
Flammability (solid, gas)	Not Applicable
Upper flammability limits	No Data Available
Lower flammability limits	No Data Available
Vapor pressure (20°C)	6-10 mmHg
Vapor Density	No information found
Specific Gravity (20°C)	1.045
Solubility in Water	Fully miscible
Partition coefficient n-octanol/water	Not Available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity (20°C)	30 cP
Explosive Properties	Not available
Oxidizing Properties	Not corrosive to metals

10. Stability and reactivity

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

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SafeTemp® ES Plus

REACTIVITY

None under normal conditions of use.

CHEMICAL STABILITY

Stable under normal conditions.

POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reactions known under conditions of normal use.

CONDITIONS TO AVOID

High temperatures and contact with incompatible materials.

INCOMPATIBLE MATERIALS

Strong oxidizers, strong acids and alkali metals.

HAZARDOUS DECOMPOSITION PRODUCTS

May included but not limited to oxides of carbon and sulfur, formaldehyde gas and thiols.

11. Toxicological information

ACUTE TOXICITY

Ingredient	Oral LD50, mg/kg	Skin LD50, mg/kg	Inhalation Vapor LD50, mg/L/4hr	Inhalation Dust/Mist LD50, mg/L/4hr	Inhalation Gas LD50, ppm
Propylene Glycol - (57-55-6)	20,000.00, Rat - Category: NA	20,800.00, Rabbit - Category: NA	105.00, Rat - Category: NA	No data available	No data available
Enzyme Complex - (Proprietary)	No data available	No data available	No data available	No data available	No data available

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

Classification	Category	Hazard Description
Acute toxicity (oral)	---	Not Applicable
Acute toxicity (dermal)	---	Not Applicable
Acute toxicity (inhalation)	---	Not Applicable
Skin corrosion/irritation	---	Not Applicable
Serious eye damage/irritation	---	Not Applicable
Respiratory sensitization	---	Not Applicable
Skin sensitization	---	Not Applicable
Germ cell mutagenicity	---	Not Applicable
Carcinogenicity	---	Not Applicable
Reproductive toxicity	---	Not Applicable
STOT-single exposure	---	Not Applicable
STOT-repeated exposure	---	Not Applicable
Aspiration hazard	---	Not Applicable

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

SDS Revision Date: 06/02/2015

Safety Data Sheet

SafeTemp® ES Plus

12. Ecological information

TOXICITY

No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

96 hour LC 50	Oncorhynchus mykiss	7,071 mg/L
48 hour LC 50	Daphnia Magna	6,598 mg/L

PERSISTENCE AND DEGRADABILITY

Readily biodegradable

COD 1.53 g O ₂ /g deicer
BOD ₅ (20 °C) 0.65 g O ₂ /g deicer
5 day BOD / COD = 0.42

Bioaccumulative potential

Bioconcentration potential is not expected.

Mobility in soil

Not available

Results of PBT and vPvB assessment

This product contains no PBT/vPvB chemicals.

Other adverse effects

No data available.

13. Disposal considerations

WASTE TREATMENT METHODS

Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

TRANSPORT INFORMATION

Not regulated as a dangerous good per US DOT or IATA

15. Regulatory information

REGULATORY OVERVIEW

The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

TOXIC SUBSTANCE CONTROL ACT (TSCA)

All components of this material are either listed or exempt from listing on the TSCA Inventory.

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

SDS Revision Date: 06/02/2015

Safety Data Sheet

SafeTemp® ES Plus

WHMIS CLASSIFICATION

Not Regulated

US EPA TIER II HAZARDS

Fire:	No
Sudden Release of Pressure:	No
Reactive:	No
Immediate (Acute):	No
Delayed (Chronic):	No

EPCRA 311/312 CHEMICALS AND RQS:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 302 EXTREMELY HAZARDOUS:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

EPCRA 313 TOXIC CHEMICALS:

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

PROPOSITION 65 - CARCINOGENS (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

PROPOSITION 65 - DEVELOPMENTAL TOXINS (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

PROPOSITION 65 - FEMALE REPRO TOXINS (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

PROPOSITION 65 - MALE REPRO TOXINS (>0.0%):

To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

NEW JERSEY RTK SUBSTANCES (>1%) :

Propylene Glycol

PENNSYLVANIA RTK SUBSTANCES (>1%) :

Propylene Glycol

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

Date of Revision: 06/02/2015

END OF DOCUMENT

Prepared according to the OSHA Hazard Communication Standard (29 CFR 1910.1200)

SDS Revision Date: 06/02/2015



SAFETY DATA SHEET

Name of Product:

Alpine RF-11

Product #: See Section 1
Revision Date: April 15, 2015

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Alpine RF-11
SYNONYMS: Deicing Fluid, Anticing Fluid
PRODUCT CODES: 1000093, 1000115, 1000119

MANUFACTURER: Nachurs Alpine Solutions Industrial
DIVISION: Marion
ADDRESS: 421 Leader Street
Marion, OH 43302, United States

EMERGENCY PHONE: United States: Chemtrec: 800-424-9300 (CCN# 15189)
Canada: CANUTEC: 613-996-6666
I TECH 877-324-4402

CHEMICAL NAME: Potassium Acetate
CHEMICAL FAMILY: Organic acid, potassium salt
CHEMICAL FORMULA: CH₃COOK

PRODUCT USE: Deicing fluid, Anticing fluid.

PREPARED BY: Nachurs Alpine Solutions Technical Services

SECTION 2: HAZARDS IDENTIFICATION

GHS ELEMENTS:

Hazard Classification: Eye Irritation (Category 2B).

Pictogram: None.

Signal Word: Warning

Hazard Statements: Causes eye irritation.

Precautionary Statements: Wash skin thoroughly after handling. Wear protective gloves, clothing, eye and face protection.
If swallowed, rinse mouth. Do NOT induce vomiting.
If on hair or skin, remove all contaminated clothing and rinse skin with water.
If inhaled, remove victim to fresh air and keep at rest in a position comfortable for breathing.
If in eyes, rinse carefully with water for several minutes. Remove contactlenses, if able and continue rinsing.
Immediately call a poison center or doctor/physician. See First Aid instruction for specific treatment.
Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

POTENTIAL HEALTH EFFECTS

EYES: May cause irritation.

SKIN: May cause irritation.

INGESTION: May cause irritation.

INHALATION: May cause irritation.

ACUTE HEALTH HAZARDS: Causes eye irritation. Possible skin irritation.

CHRONIC HEALTH HAZARDS: None known.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: None known.

CARCINOGENICITY:

OSHA: No

ACGIH: No

NTP: No

IARC: No

CA Prop 65: No

SAFETY DATA SHEET

Name of Product: **Alpine RF-11**

Product #: See Section 1

Revision Date: April 15, 2015

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

INGREDIENT:			CAS No.
	Potassium Acetate	50%	127-08-2
	Water	50%	7732-18-5
	Corrosion Inhibitor	<1%	Proprietary

SARA 313 REPORTABLE: N/A

OHSA PEL-TWA: N/A

OSHA PEL-STEL: N/A

OSHA PEL CEILING: N/A

ACGIH TLV-TWA: N/A

ACGIH TLV-STEL: N/A

ACGIH TLV CEILING: N/A

SECTION 4: FIRST AID MEASURES

EYES: Flush with water immediately and thoroughly for 15 minutes. If irritation persists, seek medical attention.

SKIN: Thoroughly wash with soap and water. If irritation persists, seek medical attention.

INGESTION: If victim is conscious and alert, give milk or water to drink. Seek medical attention.

INHALATION: Remove to fresh air. If not breathing, give artificial respiration. Seek medical attention.

NOTES TO PHYSICIANS OR FIRST AID PROVIDERS: Treat symptomatically.

SECTION 5: FIRE-FIGHTING MEASURES

FLAMMABLE LIMITS IN AIR: Not flammable.

FLASH POINT: N/A

METHOD USED: N/A

AUTOIGNITION TEMPERATURE: N/A

NFPA HAZARD CLASSIFICATION

HEALTH: 1
FLAMMABILITY: 0
REACTIVITY: 0
OTHER: 0

HMIS HAZARD CLASSIFICATION

HEALTH: 1
FLAMMABILITY: 0
REACTIVITY: 0
PROTECTION: B

EXTINGUISHING MEDIA: Water or media suitable for surrounding material.

SPECIAL FIRE FIGHTING PROCEDURES: Proper safety equipment to include SCBA operated in positive pressure mode.

UNUSUAL FIRE AND EXPLOSION HAZARDS: Carbon monoxide and/or carbon dioxide may be released.

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide and/or carbon dioxide.

SAFETY DATA SHEET

Product #: See Section 1

Name of Product: **Alpine RF-11**

Revision Date: April 15, 2015

SECTION 6: ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE MEASURES: Confine the spill to a diked area or sump, if possible, and recover as much of the product as possible. Place in suitable containers. Dispose in accordance with all federal, state, and local regulations.

SECTION 7: HANDLING AND STORAGE

HANDLING AND STORAGE: Keep in a cool dry, well-ventilated place. Keep container tightly closed. Store in suitable containers made of mild steel, stainless steel, plastic or fiberglass. Wear suitable personal protective equipment.

OTHER PRECAUTIONS: Always use good safety and industrial hygienic practices.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS: Good hygienic operating protocols are always recommended.

VENTILATION: Provide local ventilation as necessary.

RESPIRATORY PROTECTION: Respiratory protection is not normally required unless excessive heat or reaction results in release of carbon dioxide or carbon monoxide. In enclosed spaces, these gases can displace oxygen causing possible suffocation, thus use a self-contained breathing apparatus. Do not use air purifying respirators.

EYE PROTECTION: Safety goggles and full face shield.

SKIN PROTECTION: Rubber gloves.

OTHER PROTECTIVE CLOTHING OR EQUIPMENT: N/A

WORK HYGIENIC PRACTICES: Wash hands thoroughly after handling.

EXPOSURE GUIDELINES: N/A

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE: Clear, blue liquid.

ODOR: Mild odor.

PHYSICAL STATE: Liquid.

pH AS SUPPLIED: 9.0 - 11.0

BOILING POINT: >200°F
>93.3°C

MELTING POINT: Unknown

FREEZING POINT: F°: -72
C°: -58

VAPOR PRESSURE (mmHg): No data available.

VAPOR DENSITY (AIR = 1): No data available.

SPECIFIC GRAVITY (20°C): 1.28

DENSITY, LBS/GAL (20°C): 10.65

SAFETY DATA SHEET

Product #: See Section 1

Name of Product: **Alpine RF-11**

Revision Date: April 15, 2015

SOLUBILITY IN WATER: Complete

PERCENT SOLIDS BY WEIGHT: 50

PERCENT VOLATILE: 50%

VOLATILE ORGANIC COMPOUNDS (VOC): None

VISCOSITY:

Temperature °C	cSt	cPs
20	4.7	6.0
0	9.8	12.5
-10	16.5	21.1
-20	30.6	39.1

SECTION 10: STABILITY AND REACTIVITY

	STABLE	UNSTABLE
STABILITY:	x	
CONDITIONS TO AVOID (STABILITY):	Extreme heat.	
INCOMPATIBILITY (MATERIAL TO AVOID):	Strong acids or strong oxidizing agents.	
HAZARDOUS DECOMPOSITION OR BY-PRODUCTS:	Carbon monoxide and/or carbon dioxide.	
HAZARDOUS POLYMERIZATION:	Will not occur.	

SECTION 11: TOXICOLOGICAL INFORMATION

TOXICOLOGICAL INFORMATION: EPA 40CFR797.1300 Daphnid Acute Toxicity: 48 hour LC₅₀: 2825 mg/L
EPA 40CFR797.1400 Fish Acute Toxicity: 96 hour LC₅₀: 2925 mg/L

ACUTE TOXICITY: LD50 (Rat, Oral): 3250 mg/kg

SECTION 12: ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: BOD: 0.21 kg O₂/kg
COD: 0.35 kg O₂/kg

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD: Reclaim and reuse as much as possible. Dispose in accordance with all federal, state, and local regulations.

RCRA HAZARD CLASS: No.

SECTION 14: TRANSPORT INFORMATION

U.S. DEPARTMENT OF TRANSPORTATION:
GROUND TRANSPORTATION:
PROPER SHIPPING NAME: Alpine RF-11
HAZARD CLASS: N/A
ID NUMBER: N/A
PACKING GROUP: N/A
LABEL STATEMENT: N/A

SAFETY DATA SHEET

Product #: See Section 1

Name of Product: **Alpine RF-11**

Revision Date: April 15, 2015

WATER TRANSPORTATION (IMDG):

PROPER SHIPPING NAME: Alpine RF-11
HAZARD CLASS: N/A
ID NUMBER: N/A
PACKING GROUP: N/A
LABEL STATEMENTS: N/A

AIR TRANSPORTATION (IATA):

PROPER SHIPPING NAME: Alpine RF-11
HAZARD CLASS: N/A
ID NUMBER: N/A
PACKING GROUP: N/A
LABEL STATEMENTS: N/A

SECTION 15: REGULATORY INFORMATION

CHEMICAL INVENTORY LISTS

TSCA (U.S. Toxic Substances Control Act):	Yes
TSCA Section 12(b):	No
DSL (Canadian Domestic Substances List):	Yes
EINCS (European Inventory of Existing Commercial Chemical Substances):	Yes
AICS (Australia):	Yes
IECSC (China):	Yes
ENCJ (Japan):	Yes

CERCLA (COMPREHENSIVE RESPONSE COMPENSATION, AND LIABILITY ACT): No

CLEAN AIR ACT (CAA): Contains no priority air pollutants.

CLEAN WATER ACT (CWA): Contains no priority water pollutants.

SECTION 16: OTHER INFORMATION

DISCLAIMER: The information contained herein is offered only as a guide to the handling of this specific material and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive and the manner and conditions of use and handling may involve other and additional considerations. No warranty of any kind is given or implied and Nachurs Alpine Solutions will not be liable for any damages, losses, injuries or consequential damages which may result from the use or reliance on any information contained herein.

"NASi" is a trademark of Nachurs Alpine Solutions.



Black DyeMond™

Material Safety Data Sheet

Airmax® Inc.
15425 Chets Way, Armada, MI 48005
Phone: 866-424-7629
www.airmaxeco.com

SECTION 1: IDENTIFICATION

Product Trade Name: BLACK DYEMOND DYE
Chemical Family: Acid Dye Mixture

Date: 10-24-12

Address: Airmax® Ecosystem, Inc. : PO Box 38, Romeo, MI 48065 **Phone:** 866-424-7629

SECTION 2. HAZARD(S) IDENTIFICATION

Emergency Overview: May cause irritation to eyes with direct contact. May cause irritation to skin with prolonged contact. Inhalation of mist may cause irritation to respiratory tract. May cause irritation to gastrointestinal tract if swallowed. Avoid contact with product. Use in well-ventilated areas. Wash hands before eating or smoking.

Hazard Rating: HMIS: Health - 1, Flammability - 0, Reactivity - 0

Potential Health Effects:

Primary Routes of Exposure: Eye contact, skin contact, inhalation, ingestion

Overexposure Effects:

Eyes: May cause irritation.
Skin: May cause irritation.
Inhalation: May cause irritation.
Ingestion: May cause irritation.
Chronic Effects: None known. The toxicological properties of this product have not been fully investigated. This product does not contain greater than 0.1% of the known or potential carcinogens listed in NTP, IARC, or OSHA.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent	CAS No.	PEL (TWA)	TLV (TWA)
None as per 29 CFR, Section 1910.1200				

SECTION 4: FIRST-AID MEASURES

Eyes: Flush eyes with water for at least 15 minutes. Get medical attention.
Skin: Wash thoroughly with soap and water. If clothing is contaminated, remove and wash before reuse. If irritation develops, get medical attention.
Inhalation: Remove to fresh air. Aid in breathing, if necessary. If breathing difficulties persist, get immediate medical attention.
Ingestion: Rinse mouth with water. Drink several glasses of water. Seek medical attention. DO NOT INDUCE VOMITING unless advised to do so by a physician.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point: Not Applicable
Flammable Limits: Not Determined
In Case of Fire: Dry chemical, CO2, water spray or regular foam.
Fire-Fighting Procedures: Use self-contained breathing apparatus and turn out gear.
Fire and Explosion Hazards: In case of fire or explosion, keep unnecessary people away. Isolate hazard area and deny entry. Stay upwind, out of low areas, and ventilate closed spaces before entering.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Spill or Leak Procedures: Do not touch or walk through spilled material. Collect spilled material and place into containers for later disposal. Scrub spill area with detergent and rinse off with water.

SECTION 7: HANDLING AND STORAGE

Handling and Storage: Avoid contact with product. Use only with adequate ventilation. Wash thoroughly after handling. Keep container closed when not in use. Protect from freezing. Store in a cool dry location. Keep container closed when not in use.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Measures: Use local exhaust to control mist/vapors to recommended P.E.L. Deluge safety shower and eye wash station should be located near work area.
Eyes: Chemical goggles.
Skin: Gloves, coveralls, apron, boots as necessary to prevent skin contact.
Respiratory: If ventilation is inadequate, wear a NIOSH/MSHA approved respirator.



Black DyeMond™

Material Safety Data Sheet

Airmax® Inc.
15425 Chets Way, Armada, MI 48005
Phone: 866-424-7629
www.airmaxeco.com

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Black Liquid
Odor: Slight
pH of Product: ~ 7.6
Solubility in Water: Soluble

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable
Conditions to Avoid: None known
Materials to Avoid: Oxidizing agents, reducing agents
Hazardous Decomposition Products: Oxides of Carbon, Nitrogen, or Sulfur.
Hazardous Polymerization: Will not occur under normal conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

No data available.

SECTION 12: ECOLOGICAL INFORMATION

No data available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method: In accordance with local, state, federal and environmental laws and regulations.
Container Reuse Method: Containers should not be reused without professional cleaning and reconditioning. Observe all labeled safeguards until cleaned, reconditioned, or destroyed.

SECTION 14: TRANSPORT INFORMATION

DOT Proper Shipping Name: Not regulated
UN/NA Code: N/A
Packing Group: N/A

SECTION 15: REGULATORY INFORMATION

TSCA:	In compliance		
OSHA Hazard Classification:	Not hazardous		
SARA Hazard (311/312):	Not hazardous		
	<u>Name</u>	<u>CAS No.</u>	<u>RQ (lbs)</u>
CERCLA RQ/SARA 313:	Not hazardous		<u>313</u>

SECTION 16: OTHER INFORMATION

All information and data appearing on this M.S.D.S. are believed to be reliable and accurate. However, it is the user's responsibility to determine the safety, toxicity, and suitability for own use of the product described. Since the actual use by others is beyond our control, no guarantee, expressed or implied, is made by Airmax®Ecosystems, Inc. User assumes all risk and responsibility.

Communication of the Health and Safety Information in a Material Safety Data Sheet (MSDS) is an important part of Airmax® Ecosystems, Inc.'s product safety program. We provide this information to our customers and encourage them to become familiar with the content of the MSDS and the laws pertaining to its use in the workplace. A new MSDS will be mailed to your company at the time of your re-order if the MSDS is revised.

Under the OSHA Hazard Communication Standard and some state right to know laws, certain requirements related to an MSDS must be met. Employers using this material in their operations must make the MSDS available to all employees working with or otherwise handling this product. Distributors receiving this information are obligated to convey a copy of the MSDS to their customers and affiliates.

We believe that the attached information will fulfill your requirements. Should you need additional health and safety information, please contact customer service (866) 424-7629.



MuckAway™

Safety Data Sheet

Airmax® Inc.
15425 Chets Way, Armada, MI 48005
Phone: 866-424-7629
www.airmaxeco.com

SECTION 1: IDENTIFICATION

Product Trade Name: MUCKAWAY

Date: 05-27-2010

SECTION 2: HAZARD(S) IDENTIFICATION

Contains NO hazardous components as listed in 29 CFR 1900.1000 or other pertinent sections of OSHA regulations.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

State:	Free-flowing Powder
Appearance:	Whitish Tan in Color
Odor:	Yeast-like Fermentation Odor
Boiling Point:	No Data
Vapor Density:	N/A
Evaporation Rate:	N/A
pH:	5.5 - 8.0
Specific Gravity:	8.0 lb./gal
Solubility in Water:	Mostly Soluble in Water

SECTION 4: FIRST-AID MEASURES

General:	Limited toxicity data are available on this specific product; this health hazard assessment is based on the results of screening tests. Handle as you would any other chemical or biological product. Wash hands after contact.
Eye Contact:	This material may cause eye irritation. Organisms used are nonpathogenic, but can cause infection when in contact with open wounds. These organisms are susceptible to many commonly-used antibiotics. Flush with water for 20 minutes and consult Physician if eye exposure results. Avoid creating dust, and wear protective eye gear to prevent exposure to eyes.
Skin Contact:	Slight redness on hands and forearms, if individual has a history of dermal allergic reaction. Dermatitis and skin sensitization can develop after repeated and/or prolonged contact with human skin. Wash with soap and water if skin exposure results. Use rubber gloves to prevent exposure to skin.
Ingestion:	No effect if ingested in small amounts. Relative to other materials, a single dose of this product is rarely toxic by ingestion. Irritation of the mouth, pharynx, esophagus and stomach can develop following ingestion. May lead to nausea or diarrhea. Give 16-32 ounces of water to dilute product. Do not induce vomiting. Contact Physician or Poison Control Center if condition persists.
Inhalation:	Can cause allergic type response to susceptible or hypersensitive individuals upon repeated or prolonged exposure. Remove individual to fresh air if inhalation occurs. Contact Physician if condition persists. Other effects of overexposure: None known.

SECTION 5: FIRE-FIGHTING MEASURES

Flash Point & Method:	N/A
Ignition Temperature:	N/A
Explosion Characteristics:	N/A
Extinguishing Media:	No special requirements, water or dry chemical.
Special Fire Fighting Protective Equipment:	None
Unusual Fire and Explosion Hazards:	None known

SECTION 6: ACCIDENTAL RELEASE MEASURES

Steps to be Taken in Case Material is Released or Spilled:	Wear approved respirator for nuisance dust during cleanup. For small spills, flush to waste treatment sewer (product is biodegradable). For large spills, check local and state authority requirements for disposal. Uncontaminated spills can be returned to container for reuse.
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SECTION 7: HANDLING AND STORAGE

Storage: Store in a dry area between 40° F - 105° F (5° C - 40° C).



MuckAway™

Safety Data Sheet

Airmax® Inc.
15425 Chets Way, Armada, MI 48005
Phone: 866-424-7629
www.airmaxeco.com

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

TLV or Suggested Control Value:	No TLV assigned to this mixture. Control of exposure to below the TLV for the ingredients (see Section 2) will be sufficient. Minimize exposure in accordance with good hygiene practice. Avoid handling which would create large amounts of dust. To maintain shelf life, avoid prolonged exposure to high temperatures and humidity. The ACGIM TLV's shown in SECTION II are OSHA PEL's (Permissible Exposure Limits).
Ventilation:	General mechanical ventilation.
Respiratory Protection (specify type):	The specific respirator selected must be based on the containment levels found in the workplace. If needed, use MSHA-NIOSH approved respirator for nuisance dust.
Protective Clothing:	None required.
Eye Protection:	Chemical type face shield recommended.
Other Protective Equipment:	Eyewash station in work area.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

State:	Free-flowing Powder
Appearance:	Whitish Tan in Color
Odor:	Yeast-like Fermentation Odor
Boiling Point:	No Data
Vapor Density:	N/A
Evaporation Rate:	N/A
pH:	5.5 - 8.0
Specific Gravity:	8.0 lb./gal
Solubility in Water:	Mostly Soluble in Water

SECTION 10: STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Incompatibility (materials to avoid):	Strong acids or alkali compounds may inactivate biological cultures.
Hazardous Decomposition Products:	None
Hazardous Polymerization:	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

N/A

SECTION 12: ECOLOGICAL INFORMATION

N/A

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal Method:	Disposal of this product or its residues must be in accordance with all local, state, and federal requirements.
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SECTION 14: TRANSPORT INFORMATION

Land transport (DOT):	Not Regulated for Transport of Dangerous Goods
Air transport (ICAO-IATA / DGR):	Not Regulated for Transport of Dangerous Goods
Sea transport (IMDG-Code / GGVSee):	Not Regulated for Transport of Dangerous Goods

SECTION 15: REGULATORY INFORMATION

N/A

SECTION 16: OTHER INFORMATION

Precautions to be Taken in Handling or Storing:	Prevent skin and eye contact. Avoid creating aerosol. Wash hands thoroughly with soap and water after use. Avoid creating dust. Keep out of the reach of children!
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The above information is given in good faith, and is based upon research of others, and is believed to be accurate by Airmax® Ecosystems. No known relevant information has been omitted. The above information is designed to enable the User to use the product safely, and is provided solely for the User's assistance in complying with the Occupational Safety and Health Act of 1970, and the regulations there under. Any other use is prohibited. Airmax® Ecosystems assumes no responsibility or liability for any loss, injury, or damage, which may occur from the use or misuse of their products. Also, because actual use by others is beyond our control, no guarantee or warranty, is either expressed or implied, by Airmax® Ecosystems, as to the product or its use or misuse. Where the Customer has concerns, it is recommended that the Customer(s) perform their own tests.

**Pond-Clear
Defense™ Packets**

Airmax Eco-Systems, Inc.
6135 King Road – Marine City, MI 48039
Ph: 810-765-5720 – Fax: 810-765-8600
www.airmaxeco.com

Section 1 - Identification

Trade Name: *Pond-Clear Defense Packets*

Chemical Family: Microbial Mixture

D.O.T. Proper Shipping Name: Chemicals not otherwise indexed [NOI], non hazardous

Section 2 - Hazardous Ingredients

Contains NO hazardous components as listed in 29 CFR 1900.1000 or other pertinent sections of OSHA regulations.

Section 3 - Physical Data

State: Free-flowing powder	Appearance: Whitish tan in color	Odor: Yeast-like Fermentation Odor
Boiling Point: No Data	Vapor Density: N/A	Evaporation Rate: N/A
pH: 5.5 - 8.0	Specific Gravity: 8.0 lb./gal	Solubility in Water: Mostly Soluble in Water

Section 4 - Fire and Explosion Hazard Data

Flash point & Method: N/A

Ignition Temperature: N/A

Explosion Characteristics: N/A

Extinguishing media: No special requirements, water or dry chemical

Special fire fighting protective equipment: None

Unusual fire and explosion hazards: None known

Section 5 - Reactivity Data

Stability: Stable under normal conditions.

Incompatibility (materials to avoid): Strong acids or alkali compounds may inactivate biological cultures.

Hazardous decomposition products: None

Hazardous polymerization: Will not occur.

Section 6 - Health Hazard Assessment

General: Limited toxicity data are available on this specific product; this health hazard assessment is based on the results of screening tests. Handle as you would any other chemical or biological product. Wash hands after contact.

Eye contact: This material may cause eye irritation. Organisms used are nonpathogenic, but can cause infection when in contact with open wounds. These organisms are susceptible to many commonly-used antibiotics. Flush with water for 20 minutes and consult Physician if eye exposure results. Avoid creating dust, and wear protective eye gear to prevent exposure to eyes.

Skin contact: Slight redness on hands and forearms, if individual has a history of dermal allergic reaction. Dermatitis and skin sensitization can develop after repeated and/or prolonged contact with human skin. Wash with soap and water if skin exposure results. Use rubber gloves to prevent exposure to skin.

Ingestion: No effect if ingested in small amounts. Relative to other materials, a single dose of this product is rarely toxic by ingestion. Irritation of the mouth, pharynx, esophagus and stomach can develop following ingestion. May lead to nausea or diarrhea. Give 16-32 ounces of water to dilute product. Do not induce vomiting. Contact Physician or Poison Control Center if condition persists.

Inhalation: Can cause allergic type response to susceptible or hypersensitive individuals upon repeated or prolonged exposure. Remove individual to fresh air if inhalation occurs. Contact Physician if condition persists.

Other effects of overexposure: None known.

Section 7 - Spill or Leak Procedures

Storage: Store in a dry area between 40° F - 105° F (5° C - 40° C).

Steps to be taken in case material is released or spilled: Wear approved respirator for nuisance dust during cleanup. For small spills, flush to waste treatment sewer (product is biodegradable). For large spills, check local and state authority requirements for disposal. Uncontaminated spills can be returned to container for reuse.

Disposal method: Disposal of this product or its residues must be in accordance with all local, state, and federal requirements.

Section 8 - Special Protection Information

TLV or suggested control value: No TLV assigned to this mixture. Control of exposure to below the TLV for the ingredients (see Section 2) will be sufficient. Minimize exposure in accordance with good hygiene practice. Avoid handling which would create large amounts of dust. To maintain shelf life, avoid prolonged exposure to high temperatures and humidity. The ACGIM TLV's shown in SECTION II are OSHA PEL's (Permissible Exposure Limits).

Ventilation: General mechanical ventilation.

Respiratory protection (specify type): The specific respirator selected must be based on the containment levels found in the workplace. If needed, use MSHA-NIOSH approved respirator for nuisance dust.

Section 9 - Special Protection Information

Protective clothing: None required.

Eye protection: Chemical type face shield recommended.

Other protective equipment: Eyewash station in work area.

Section 10 - Special Precautions or Other Comments

Precautions to be taken in handling or storing: Prevent skin and eye contact. Avoid creating aerosol. Wash hands thoroughly with soap and water after use. Avoid creating dust. Keep out of the reach of children!

The above information is given in good faith, and is based upon research of others, and is believed to be accurate by Airmax Eco-Systems. No known relevant information has been omitted. The above information is designed to enable the User to use the product safely, and is provided solely for the User's assistance in complying with the Occupational Safety and Health Act of 1970, and the regulations thereunder. Any other use is prohibited. Airmax Eco-Systems assumes no responsibility or liability for any loss, injury, or damage, which may occur from the use or misuse of their products. Also, because actual use by others is beyond our control, no guarantee or warranty, is either expressed or implied, by Airmax Eco-Systems, as to the product or its use or misuse. Where the Customer has concerns, it is recommended that the Customer(s) perform their own tests.

Mackert, Susan (DEQ)

From: Carlson, Jennifer (DEQ)
Sent: Thursday, April 30, 2015 1:45 PM
To: Mackert, Susan (DEQ)
Cc: Thomas, Bryant (DEQ)
Subject: Ft. Belvoir Planning Statement
Attachments: VA0092771 Permit Planning Statement_final.docx; VA0092771 Outfall Information - Attachment.xlsx

Hi Susan,

The planning statement and the outfall information table are attached. There have not been any updates to the outfall information table compared to the version that I sent to you earlier this month.

Please let me know if you have any questions!

Thanks,
Jen

*Jennifer Carlson
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Northern Regional Office
Virginia Department of Environmental Quality
13901 Crown Court
Woodbridge, VA 22193
Phone: 703-583-3859
jennifer.carlson@deq.virginia.gov*

To: Susan Mackert
From: Jennifer Carlson

Date: April 30, 2015
Subject: Planning Statement for Fort Belvoir
Permit Number: VA0092771

Information for Outfalls 001 through 032: See Attachment

Discharge Type:
Discharge Flow:
Receiving Stream:
Latitude / Longitude:
Rivermile:
Streamcode:
Waterbody:
Water Quality Standards:
Drainage Area:

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

- A. Outfalls 001, 002, 003, 009, 012, 031, 032 each discharge into a different unnamed tributary to Accotink Creek. These 7 tributaries have not been monitored or assessed by DEQ. The nearest DEQ ambient monitoring station on Accotink Creek for Outfalls 001, 002, 003, 009 and 012 is 1aACO004.84. This station is located at the Rt. 611 bridge crossing, approximately 0.1, 0.86, 2.16, 1.03, and 1.64 miles upstream of the confluence of Accotink Creek with the unnamed receiving stream for each outfall, respectively. The nearest downstream DEQ ambient monitoring station on Accotink Creek for Outfalls 031 and 032 is 1aACO006.10, which is located at the Route 790 bridge. This station is located approximately 2.1 and 1.8 miles downstream of Outfalls 031 and 032, respectively. The following is the water quality summary for Accotink Creek, as taken from the 2012 Integrated Report:

Class III, Section 7, special stds. b.

DEQ monitoring stations located in this segment of Accotink Creek:

- *Ambient monitoring station 1aACO002.50, at Route 1,*
- *Ambient monitoring station 1aACO004.84, at Route 611 (Telegraph Road)*
- *Ambient monitoring station 1aACO006.10, at Route 790*
- *Biological monitoring station 1aACO009.14, upstream of Route 636 and Fairfax County Parkway.*

The fish consumption use is assessed as not supporting due to data collected previously at DEQ's fish tissue/sediment station 1aACO004.86, at Route 611. Fish tissue data revealed exceedances of the water quality criterion based tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in tissue from 3 species of fish

(America eel, redbreast sunfish and rainbow trout) in 2004. Also, at station 1aACO002.50 in 2005, SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs), which is noted by an observed effect. Additionally, exceedances of the water quality criterion based tissue value (TV) for heptachlor epoxide and dieldrin were also noted by observed effects for the 2008 assessment. These observed effects will remain.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL has been completed and EPA approved for this segment.

Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use.

The wildlife use is considered fully supporting.

- B. Outfalls 004, 005, 010, 011, 013, 014, 015, 017, 023, 025, 027 and 030 discharge into a number of different tributaries to Accotink Bay, all of which have not been monitored or assessed. Outfall 025 discharges into a named tributary, Mason Run. Outfalls 013 and 014 each discharge into a different unnamed tributary to Mason Run. Each of the remaining outfalls discharge into one of six different unnamed tributaries. The following is the water quality summary for the downstream segment of Accotink Bay, as taken from the 2012 Integrated Report:

Class II, Section 6, special stds. b, y.

DEQ monitoring station located in this segment of Accotink Bay:

- *Fish tissue monitoring station 1aACO001.78.*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. There was an excursion above the water quality criterion based tissue value (TV) of 110 parts per billion (ppb) for total chlordane in gizzard shad (2005), noted by an observed effect. Additionally, excursions above the risk-based tissue screening value (TSV) of 270 parts per billion (ppb) for arsenic (As) in fish tissue were recorded in tissue from one specie (American shad) of fish sampled (4 total excursions) in 2006 at monitoring station 1aACO001.78, also noted by an observed effect.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed.*

The recreation and wildlife uses were not assessed.

**Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.*

- C. Outfall 022 discharges into tidal Gunston Cove. The closest DEQ ambient monitoring station is 1aPOH000.93, located approximately 0.47 miles from Outfall 022. The following is the water quality summary for this portion of Gunston Cove, as taken from the 2012 Integrated Report:

Class II, Section 6, special stds. b, y.

DEQ monitoring stations located in this portion of Gunston Cove:

- *Ambient monitoring station 1aPOH000.21, at marker 62*
- *Ambient monitoring station 1aPOH000.93, off Gunston Hall*
- *Estuarine probabilistic monitoring station 1aPOH001.56 (sampled in 2004)*
- *Estuarine probabilistic monitoring station 1aPOH000.19 (sampled in 2007)*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed. The wildlife and recreation uses are considered fully supporting.*

Samples were collected for Coastal 2000 weight of evidence analysis, utilizing bulk chemical data, toxicity test data, and an evaluation of benthic community conditions at station 1aPOH000.19. This analysis resulted in insufficient information to determine support of any designated uses. However, it was noted that some possibilities for benthic alteration could be a result of nutrient enrichment, habitat condition, habitat type, or a high energy environment. However, toxic contaminants are an unlikely cause of the stressed community.

**Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.*

- D. Outfalls 006, 007, 018, 019, 020 and 021 each discharge into one of four unnamed tributaries to Gunston Cove, all of which have not been monitored or assessed. The nearest downstream DEQ ambient monitoring station is in Gunston Cove, 1aPOH000.93, located off Gunston Hall. This station is located approximately 1.45, 0.98, 1.31, 1.37, 1.1, and 0.96 miles downstream of the outfalls, respectively. Discharge from these outfalls flow into the segment of Gunston Cove described in Part C.
- E. Outfalls 008, 024, 028 and 029 each discharge into a different unnamed tributary to Dogue Creek. These 4 tributaries have not been monitored or assessed by DEQ. The most recent sampled downstream DEQ ambient monitoring station is on Dogue Creek, 1aDOU003.17. This station is located at the Rt. 622 bridge crossing, approximately 1.88 and 2.2 miles downstream of Outfalls 008 and 024, respectively. This station is located 0.25 miles upstream of the confluence of Dogue Creek with the unnamed tributary that discharge from Outfalls 028 and 029 eventually flow into. The following is the water quality summary for this segment of Dogue Creek, as taken from the 2012 Integrated Report:

To: Susan Mackert
From: Jennifer Carlson
Table B (Year first Listed as Impaired column) Revised by RS on June 21, 2016
Date: April 30, 2015
Subject: Planning Statement for Fort Belvoir
Permit Number: VA0092771

Information for Outfalls 001 through 032: See Attachment

Discharge Type:
Discharge Flow:
Receiving Stream:
Latitude / Longitude:
Rivermile:
Streamcode:
Waterbody:
Water Quality Standards:
Drainage Area:

1. Please provide water quality monitoring information for the receiving stream segment. If there is not monitoring information for the receiving stream segment, please provide information on the nearest downstream monitoring station, including how far downstream the monitoring station is from the outfall.

- A. Outfalls 001, 002, 003, 009, 012, 031, 032 each discharge into a different unnamed tributary to Accotink Creek. These 7 tributaries have not been monitored or assessed by DEQ. The nearest DEQ ambient monitoring station on Accotink Creek for Outfalls 001, 002, 003, 009 and 012 is 1aACO004.84. This station is located at the Rt. 611 bridge crossing, approximately 0.1, 0.86, 2.16, 1.03, and 1.64 miles upstream of the confluence of Accotink Creek with the unnamed receiving stream for each outfall, respectively. The nearest downstream DEQ ambient monitoring station on Accotink Creek for Outfalls 031 and 032 is 1aACO006.10, which is located at the Route 790 bridge. This station is located approximately 2.1 and 1.8 miles downstream of Outfalls 031 and 032, respectively. The following is the water quality summary for Accotink Creek, as taken from the 2012 Integrated Report:

Class III, Section 7, special stds. b.

DEQ monitoring stations located in this segment of Accotink Creek:

- *Ambient monitoring station 1aACO002.50, at Route 1,*
- *Ambient monitoring station 1aACO004.84, at Route 611 (Telegraph Road)*
- *Ambient monitoring station 1aACO006.10, at Route 790*
- *Biological monitoring station 1aACO009.14, upstream of Route 636 and Fairfax County Parkway.*

The fish consumption use is assessed as not supporting due to data collected previously at DEQ's fish tissue/sediment station 1aACO004.86, at Route 611. Fish tissue data revealed exceedances of the water quality criterion based tissue value (TV) of 20 parts per billion (ppb) for polychlorinated biphenyls (PCBs) in fish tissue were recorded in tissue from 3 species of fish

(America eel, redbreast sunfish and rainbow trout) in 2004. Also, at station 1aACO002.50 in 2005, SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs), which is noted by an observed effect. Additionally, exceedances of the water quality criterion based tissue value (TV) for heptachlor epoxide and dieldrin were also noted by observed effects for the 2008 assessment. These observed effects will remain.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL has been completed and EPA approved for this segment.

Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use.

The wildlife use is considered fully supporting.

- B. Outfalls 004, 005, 010, 011, 013, 014, 015, 017, 023, 025, 027 and 030 discharge into a number of different tributaries to Accotink Bay, all of which have not been monitored or assessed. Outfall 025 discharges into a named tributary, Mason Run. Outfalls 013 and 014 each discharge into a different unnamed tributary to Mason Run. Each of the remaining outfalls discharge into one of six different unnamed tributaries. The following is the water quality summary for the downstream segment of Accotink Bay, as taken from the 2012 Integrated Report:

Class II, Section 6, special stds. b, y.

DEQ monitoring station located in this segment of Accotink Bay:

- *Fish tissue monitoring station 1aACO001.78.*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. There was an excursion above the water quality criterion based tissue value (TV) of 110 parts per billion (ppb) for total chlordane in gizzard shad (2005), noted by an observed effect. Additionally, excursions above the risk-based tissue screening value (TSV) of 270 parts per billion (ppb) for arsenic (As) in fish tissue were recorded in tissue from one specie (American shad) of fish sampled (4 total excursions) in 2006 at monitoring station 1aACO001.78, also noted by an observed effect.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed.*

The recreation and wildlife uses were not assessed.

**Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.*

(America eel, redbreast sunfish and rainbow trout) in 2004. Also, at station 1aACO002.50 in 2005, SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs), which is noted by an observed effect. Additionally, exceedances of the water quality criterion based tissue value (TV) for heptachlor epoxide and dieldrin were also noted by observed effects for the 2008 assessment. These observed effects will remain.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL has been completed and EPA approved for this segment.

Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use.

The wildlife use is considered fully supporting.

- B. Outfalls 004, 005, 010, 011, 013, 014, 015, 017, 023, 025, 027 and 030 discharge into a number of different tributaries to Accotink Bay, all of which have not been monitored or assessed. Outfall 025 discharges into a named tributary, Mason Run. Outfalls 013 and 014 each discharge into a different unnamed tributary to Mason Run. Each of the remaining outfalls discharge into one of six different unnamed tributaries. The following is the water quality summary for the downstream segment of Accotink Bay, as taken from the 2012 Integrated Report:

Class II, Section 6, special stds. b, y.

DEQ monitoring station located in this segment of Accotink Bay:

- *Fish tissue monitoring station 1aACO001.78.*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. There was an excursion above the water quality criterion based tissue value (TV) of 110 parts per billion (ppb) for total chlordane in gizzard shad (2005), noted by an observed effect. Additionally, excursions above the risk-based tissue screening value (TSV) of 270 parts per billion (ppb) for arsenic (As) in fish tissue were recorded in tissue from one specie (American shad) of fish sampled (4 total excursions) in 2006 at monitoring station 1aACO001.78, also noted by an observed effect.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed.*

The recreation and wildlife uses were not assessed.

**Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.*

(American eel, redbreast sunfish and rainbow trout) in 2004. Also, at station 1aCO002.50 in 2005, SPMD data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs), which is noted by an observed effect. Additionally, exceedances of the water quality criterion based tissue value (TV) for heptachlor epoxide and dieldrin were also noted by observed effects for the 2008 assessment. These observed effects will remain.

E. coli monitoring finds a bacterial impairment, resulting in an impaired classification for the recreation use. A bacteria TMDL has been completed and EPA approved for this segment.

Biological monitoring finds benthic macroinvertebrate impairments, resulting in an impaired classification for the aquatic life use.

The wildlife use is considered fully supporting.

- B. Outfalls 004, 005, 010, 011, 013, 014, 015, 017, 023, 025, 027 and 030 discharge into a number of different tributaries to Accotink Bay, all of which have not been monitored or assessed. Outfall 025 discharges into a named tributary, Mason Run. Outfalls 013 and 014 each discharge into a different unnamed tributary to Mason Run. Each of the remaining outfalls discharge into one of six different unnamed tributaries. The following is the water quality summary for the downstream segment of Accotink Bay, as taken from the 2012 Integrated Report:

Class II, Section 6, special stds. b, y.

DEQ monitoring station located in this segment of Accotink Bay:

- *Fish tissue monitoring station 1aCO001.78.*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory and fish tissue monitoring. There was an excursion above the water quality criterion based tissue value (TV) of 110 parts per billion (ppb) for total chlordane in gizzard shad (2005), noted by an observed effect. Additionally, excursions above the risk-based tissue screening value (TSV) of 270 parts per billion (ppb) for arsenic (As) in fish tissue were recorded in tissue from one specie (American shad) of fish sampled (4 total excursions) in 2006 at monitoring station 1aCO001.78, also noted by an observed effect.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed.*

The recreation and wildlife uses were not assessed.

**Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.*

Class III, Section 7, special stds. b.

DEQ ambient water quality monitoring station 1aDOU002.59, at Route 1 (last sampled 2002)

The aquatic life and wildlife uses are considered fully supporting. The fish consumption and recreation uses were not assessed.*

* Please note: The recreation use is listed as not supporting in the Draft 2014 Integrated Report, due to exceedances of E. coli bacteria.

- F. Outfall 016 discharges into tidal Dogue Creek. DEQ station 1aDOU000.60, located approximately 0.82 miles downstream of Outfall 016, has the most recent monitoring data. The following is the water quality summary for this portion of Dogue Creek, as taken from the 2012 Integrated Report:

Class II, Section 6, special stds. b, y.

DEQ monitoring stations located in this portion of Dogue Creek:

- Ambient monitoring station 1aDOU000.60, across from the Mount Vernon Yacht Club*
- Ambient monitoring station 1aDOU001.40, near the Fort Belvoir Marina*
- Ambient monitoring station 1aDOU002.01, at Route 235.*

The fish consumption use is categorized as impaired due to a Virginia Department of Health, Division of Health Hazards Control, PCB fish consumption advisory. Water quality data revealed an exceedance of the human health criteria of 0.64 parts per billion (ppb) polychlorinated biphenyls (PCBs) in a grab sample at station 1aDOU002.01, which is noted by an observed effect. A PCB TMDL for the tidal Potomac River watershed has been completed and approved.

The aquatic life use is fully supporting. A TMDL has been completed for the Chesapeake Bay watershed. The submerged aquatic vegetation data is assessed as fully supporting the aquatic life use. For the open water aquatic life subuse; the thirty day mean is acceptable*, however, the seven day mean and instantaneous levels have not been assessed. The wildlife and recreation uses are considered fully supporting.*

*Please note: The aquatic life use is listed as not supporting in the Draft 2014 Integrated Report. The open water aquatic life subuse is not met based upon the assessment of the thirty day mean for dissolved oxygen. This impairment will be addressed by the completed TMDL for the Chesapeake Bay watershed.

- G. Outfall 026 discharges into an unnamed tributary to tidal Dogue Creek. This unnamed tributary has not been monitored or assessed by DEQ. The nearest downstream DEQ ambient monitoring station is in the tidal portion of Dogue Creek, 1aDOU000.60. This station is located across from the Mount Vernon Yacht Club, approximately 0.82 miles downstream of Outfall 026. Discharge from this outfall flows into the segment of Tidal Dogue Creek described in Part F.

2. Does this facility discharge to a stream segment on the 303(d) list? If yes, please fill out Table A.

Yes, Outfalls 016 and 022 discharge directly to waterbodies listed on the 303(d) list. These impaired direct receiving streams are noted in the Outfalls column of Table B.

3. Are there any downstream 303(d) listed impairments that are relevant to this discharge? If yes, please fill out Table B.

Yes. Table B includes the impairment information for the receiving stream and downstream segments included in the 2012 Integrated Report. Part I of the Table B consists of the impairment information for segments located in the Accotink Creek watershed and Part II consists of impairments in the Dogue Creek watershed. The segments in each watershed are listed in order from upstream to downstream.

Table B. Information on 303(d) Impairments and TMDLs for receiving stream and downstream segments

Waterbody Name	Outfalls	Impaired Use	Cause	TMDL completed	WLA	Basis for WLA	Year first Listed as Impaired
Impairment Information in the 2012 Integrated Report							
Part I							
Accotink Creek	Downstream of: 001 002 003 009 012 031 032	Recreation	<i>E. coli</i>	Lower Accotink Bacteria 12/18/08	none	Not expected to discharge pollutant	2004
		Aquatic Life	Benthic Macroinvertebrates	No	--	--	2004
		Fish Consumption	PCBs	No	--	--	2010
Accotink Bay*	Downstream of: 004 015 005 017 010 023 011 025 013 027 014 030	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	0.0992 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004
Pohick Bay*		Aquatic Life	pH	No	--	--	2012
		Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	7.58 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004
Gunston Cove*	Receiving Stream for: 022 Downstream of: 006 019 007 020 018 021	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	0.517 g/yr PCBs	Aggregate load for all stormwater outfalls in direct drainage	2004
Part II							
Tidal Dogue Creek*	Receiving Stream for: 016 Downstream	Fish Consumption	PCBs	Tidal Potomac PCB 10/31/07	20.2 g/yr PCBs	Aggregate load for all stormwater outfalls in direct	2004

	of^:					drainage	
	008 028						
	024 029						

* Please note that in the Draft 2014 Integrated Assessment, these tidal segments are listed with a dissolved oxygen impairment for the aquatic life use. The dissolved oxygen impairment will be covered by the completed TMDL for the Chesapeake Bay watershed; however, the Bay TMDL and the WLAs contained within the TMDL are not addressed in this planning statement.

^ Outfalls 008, 024, 028 and 029 discharge into unnamed tributaries to the free-flowing portion of Dogue Creek. This free-flowing segment of Dogue Creek is listed as not supporting the recreation use due to exceedances of *E. coli* bacteria in the Draft 2014 Integrated Assessment.

4. Is there monitoring or other conditions that Planning/Assessment needs in the permit?

Accotink Creek, which is downstream from Outfalls 001, 002, 003, 009, 012, 031, and 032, is listed as impaired for benthic macroinvertebrates with a TMDL currently under development. Because these industrial outfalls are located within five miles upstream from the benthic impairment, they are a candidate for nutrient monitoring. DEQ staff has concluded that the nutrient monitoring that will be required of this facility to meet Chesapeake Bay nutrient monitoring requirements is sufficient; additional nutrient monitoring will not be requested.

The free flowing portion of Accotink Creek and the tidal portions of Accotink Bay, Gunston Cove and Dogue Creek are listed with a PCB impairment. Due to these PCB impairments, this facility is a candidate for low-level PCB monitoring, based upon its designation as an industrial facility. DEQ staff is aware that there have been incidents of PCB contamination in the past at the facility. Staff recommends that this facility characterize the stormwater runoff and develop a plan for PCB sampling at the outfalls located downstream from all known historically contaminated sites. It is recommended that PCB samples are collected using EPA Method 1668, which is capable of detecting low-level concentrations for all 209 PCB congeners. PCB data generated using Method 1668 revisions A, B, and C are acceptable; however, data generated using version A is preferred.

5. Fact Sheet Requirements – Please provide information regarding any drinking water intakes located within a 5 mile radius of the discharge point.

There are no public water supply intakes within a 5 mile radius of any of the outfalls.

Representative Outfall ID	Receiving Water	Latitude (Provided by Permittee)	Longitude (Provided by Permittee)	Latitude (Generated by DEQ*)	Longitude (Generated by DEQ*)	Rivermile	Streamcode & Waterbody	Water Quality Standards	Drainage Area (sq. miles)
001	Accotink Creek, UT	38° 43' 15" N	-77° 11' 30" W	38° 43' 10.76" N	77° 11' 27.12" W	4.74	1aACO --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
002	Accotink Creek, UT	38° 43' 0" N	-77° 10' 45" W	38° 43' 05.85" N	77° 10' 40.05" W	0.02	1aXNR --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
003	Accotink Creek, UT	38° 42' 30" N	-77° 10' 15" W	38° 42' 37.31" N	77° 10' 14.33" W	0.13	1aXNO --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
004	Accotink Bay, UT	38° 42' 30" N	-77° 10' 15" W	38° 42' 26.22" N	77° 10' 20.01" W	0.26	1aXNN --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
005	Accotink Bay, UT	38° 42' 0" N	-77° 9' 15" W	38° 42' 05.71" N	77° 09' 15.59" W	0.14	1aXMV --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
006	Gunston Cove, UT	38° 41' 30" N	-77° 8' 45" W	38° 41' 26.97" N	77° 08' 43.19" W	1.00	1aXNH --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
007	Gunston Cove, UT	38° 41' 0" N	-77° 8' 30" W	38° 41' 02.68" N	77° 08' 29.01" W	0.55	1aXMZ --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
008	Dogue Creek, UT	38° 44' 15" N	-77° 9' 15" W	38° 44' 17.21" N	77° 09' 14.94" W	0.09	1aXNM --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
009	Accotink Creek, UT	38° 44' 0" N	-77° 10' 0" W	38° 43' 55.55" N	77° 10' 03.13" W	1.09	1aXNQ --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
010	Accotink Bay, UT	38° 42' 45" N	-77° 9' 0" W	38° 42' 40.27" N	77° 08' 56.28" W	0.7	1aXND --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
011	Accotink Bay, UT	38° 42' 30" N	-77° 9' 15" W	38° 42' 36.22" N	77° 09' 12.40" W	0.43	1aXND --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
012	Accotink Creek, UT	38° 43' 0" N	-77° 10' 0" W	38° 42' 57.36" N	77° 10' 03.94" W	0.05	1aXNP --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
013	Mason Run, UT	38° 43' 15" N	-77° 9' 0" W	38° 43' 13.11" N	77° 09' 07.06" W	0.19	1aXNG --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5

Representative Outfall ID	Receiving Water	Latitude (Provided by Permittee)	Longitude (Provided by Permittee)	Latitude (Generated by DEQ*)	Longitude (Generated by DEQ*)	Rivermile	Streamcode & Waterbody	Water Quality Standards	Drainage Area (sq. miles)
014	Mason Run, UT	38° 43' 15" N	-77° 9' 15" W	38° 43' 16.30" N	77° 09' 11.48" W	0.9	1aXNE --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
015	Accotink Bay, UT	38° 41' 30" N	-77° 8' 45" W	38° 41' 36.31" N	77° 08' 46.81" W	0.61	1aXMX --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
016	Dogue Creek	38° 42' 30" N	-77° 7' 45" W	38° 42' 24.27" N	77° 07' 48.92" W	1.35	1aDOU --- VAN-A14E	Class II Section 6 Special Stds. b,y	N/A - Tidal Waters
017	Accotink Bay, UT	38° 42' 0" N	-77° 9' 0" W	38° 41' 58.19" N	77° 08' 52.86" W	0.72	1aXMW --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
018	Gunston Cove, UT	38° 41' 0" N	-77° 8' 15" W	38° 40' 56.72" N	77° 08' 10.28" W	0.11	1aXNB --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
019	Gunston Cove, UT	38° 41' 0" N	-77° 8' 15" W	38° 40' 53.92" N	77° 08' 08.51" W	0.05	1aXNB --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
020	Gunston Cove, UT	38° 40' 45" N	-77° 8' 15" W	38° 40' 45.92" N	77° 08' 09.29" W	0.35	1aXNA --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
021	Gunston Cove, UT	38° 40' 45" N	-77° 8' 15" W	38° 40' 38.71" N	77° 08' 13.46" W	0.2	1aXNA --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
022	Gunston Cove	38° 40' 30" N	-77° 8' 30" W	38° 40' 28.17" N	77° 08' 25.95" W	0.78	1aPOH --- VAN-A15E	Class II Section 6 Special Stds. b,y	N/A - Tidal Waters
023	Accotink Bay, UT	38° 42' 0" N	-77° 9' 15" W	38° 42' 07.89" N	77° 09' 09.56" W	0.33	1aXMV --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
024	Dogue Creek, UT	38° 44' 15" N	-77° 9' 15" W	38° 44' 08.47" N	77° 09' 21.80" W	0.83	1aXNK --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
025	Mason Run	38° 42' 45" N	-77° 9' 30" W	38° 42' 53.01" N	77° 09' 29.41" W	0.71	1aMSN --- VAN-A15R	Class III Section 7 Special Stds. b	0.9
026	Dogue Creek, UT	38° 42' 0" N	-77° 8' 0" W	38° 42' 05.32" N	77° 07' 55.52" W	0.15	1aXNC --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5

Representative Outfall ID	Receiving Water	Latitude (Provided by Permittee)	Longitude (Provided by Permittee)	Latitude (Generated by DEQ*)	Longitude (Generated by DEQ*)	Rivermile	Streamcode & Waterbody	Water Quality Standards	Drainage Area (sq. miles)
027	Accotink Bay, UT	38° 41' 15" N	-77° 9' 0" W	38° 41' 16.94" N	77° 09' 01.05" W	0.35	1aXMY --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
028	Dogue Creek, UT	38° 43' 30" N	-77° 8' 45" W	38° 43' 30.18" N	77° 08' 46.85" W	1.03	1aXNI --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
029	Dogue Creek, UT	38° 43' 45" N	-77° 8' 30" W	38° 43' 42.42" N	77° 08' 24.98" W	0.49	1aXNJ --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
030	Accotink Bay, UT	38° 41' 45" N	-77° 9' 15" W	38° 41' 47.17" N	77° 09' 12.20" W	0.3	1aXMW --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
031	Accotink Creek, UT	38° 45' 15" N	-77° 12' 0" W	38° 45' 12.17" N	77° 11' 54.37" W	0.08	1aXNT --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5
032	Accotink Creek, UT	38° 45' 15" N	-77° 12' 0" W	38° 44' 57.16" N	77° 11' 44.24" W	0.27	1aXNS --- VAN-A15R	Class III Section 7 Special Stds. b	< 0.5

Dissolved Oxygen Criteria (9VAC25-260-185)

Designated Use	Criteria Concentration/Duration	Temporal Application
Migratory fish spawning and nursery	7-day mean > 6 mg/L (tidal habitats with 0-0.5 ppt salinity)	February 1 – May 31
	Instantaneous minimum > 5 mg/L	
Open-water ^{1,2}	30-day mean > 5.5 mg/L (tidal habitats with 0-0.5 ppt salinity)	Year-round
	30-day mean > 5 mg/L (tidal habitats with >0.5 ppt salinity)	
	7-day mean > 4 mg/L	
	Instantaneous minimum > 3.2 mg/L at temperatures < 29°C	
Deep-water	Instantaneous minimum > 4.3 mg/L at temperatures > 29°C	June 1-September 30
	30-day mean > 3 mg/L	
	1-day mean > 2.3 mg/L	
Deep-channel	Instantaneous minimum > 1.7 mg/L	June 1-September 30
	Instantaneous minimum > 1 mg/L	

¹See subsection aa of 9VAC25-260-310 for site specific seasonal open-water dissolved oxygen criteria applicable to the tidal Mattaponi and Pamunkey Rivers and their tidal tributaries.

²In applying this open-water instantaneous criterion to the Chesapeake Bay and its tidal tributaries where the existing water quality for dissolved oxygen exceeds an instantaneous minimum of 3.2 mg/L, that higher water quality for dissolved oxygen shall be provided antidegradation protection in accordance with section 30 subsection A.2 of the Water Quality Standards.

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: **Fort Belvoir** Permit No.: **VA0092771**

Receiving Stream: **Accotink Bay, UT; Accotink Creek, UT; Dogue Creek, UT; Gunston Cove, UT; Mason Run; Mason Run, UT**

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO ₃) =	mg/L	1Q10 (Annual) =	0 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO ₃) =	50 mg/L
90% Temperature (Annual) =	deg C	7Q10 (Annual) =	0 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	0 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	SU	1Q10 (Wet season) =	0 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	8 SU
10% Maximum pH =	SU	30Q10 (Wet season) =	0 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	0 MGD			Discharge Flow =	0.12 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	0 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	9.9E+02	--	--	--	--	--	--	--	--	--	--	na	9.9E+02
Acrolein	0	--	--	na	9.3E+00	--	--	na	9.3E+00	--	--	--	--	--	--	--	--	--	--	na	9.3E+00
Acrylonitrile ^c	0	--	--	na	2.5E+00	--	--	na	2.5E+00	--	--	--	--	--	--	--	--	--	--	na	2.5E+00
Aldrin ^c	0	3.0E+00	--	na	5.0E-04	3.0E+00	--	na	5.0E-04	--	--	--	--	--	--	--	--	3.0E+00	--	na	5.0E-04
Ammonia-N (mg/l) (Yearly)	0	8.41E+00	1.24E+00	na	--	8.41E+00	1.24E+00	na	--	--	--	--	--	--	--	--	--	8.41E+00	1.24E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	8.41E+00	2.43E+00	na	--	8.41E+00	2.43E+00	na	--	--	--	--	--	--	--	--	--	8.41E+00	2.43E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	4.0E+04	--	--	--	--	--	--	--	--	--	--	na	4.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	6.4E+02	--	--	--	--	--	--	--	--	--	--	na	6.4E+02
Arsenic	0	3.4E+02	1.5E+02	na	--	3.4E+02	1.5E+02	na	--	--	--	--	--	--	--	--	--	3.4E+02	1.5E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene ^c	0	--	--	na	5.1E+02	--	--	na	5.1E+02	--	--	--	--	--	--	--	--	--	--	na	5.1E+02
Benzidine ^c	0	--	--	na	2.0E-03	--	--	na	2.0E-03	--	--	--	--	--	--	--	--	--	--	na	2.0E-03
Benzo (a) anthracene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (b) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (k) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Benzo (a) pyrene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Bis(2-Chloroethyl) Ether ^c	0	--	--	na	5.3E+00	--	--	na	5.3E+00	--	--	--	--	--	--	--	--	--	--	na	5.3E+00
Bis(2-Chloroisopropyl) Ether	0	--	--	na	6.5E+04	--	--	na	6.5E+04	--	--	--	--	--	--	--	--	--	--	na	6.5E+04
Bis 2-Ethylhexyl Phthalate ^c	0	--	--	na	2.2E+01	--	--	na	2.2E+01	--	--	--	--	--	--	--	--	--	--	na	2.2E+01
Bromoform ^c	0	--	--	na	1.4E+03	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	1.8E+00	6.6E-01	na	--	--	--	--	--	--	--	--	--	1.8E+00	6.6E-01	na	--
Carbon Tetrachloride ^c	0	--	--	na	1.6E+01	--	--	na	1.6E+01	--	--	--	--	--	--	--	--	--	--	na	1.6E+01
Chlordane ^c	0	2.4E+00	4.3E-03	na	8.1E-03	2.4E+00	4.3E-03	na	8.1E-03	--	--	--	--	--	--	--	--	2.4E+00	4.3E-03	na	8.1E-03
Chloride	0	8.6E+05	2.3E+05	na	--	8.6E+05	2.3E+05	na	--	--	--	--	--	--	--	--	--	8.6E+05	2.3E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	1.9E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.9E+01	1.1E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^c	0	--	--	na	1.3E+02	--	--	na	1.3E+02	--	--	--	--	--	--	--	--	--	--	na	1.3E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	1.6E+03	--	--	--	--	--	--	--	--	--	--	na	1.6E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	8.3E-02	4.1E-02	na	--	--	--	--	--	--	--	--	--	8.3E-02	4.1E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	3.2E+02	4.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+02	4.2E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	1.6E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	1.6E+01	1.1E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene ^c	0	--	--	na	1.8E-02	--	--	na	1.8E-02	--	--	--	--	--	--	--	--	--	--	na	1.8E-02
Copper	0	7.0E+00	5.0E+00	na	--	7.0E+00	5.0E+00	na	--	--	--	--	--	--	--	--	--	7.0E+00	5.0E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	2.2E+01	5.2E+00	na	1.6E+04	--	--	--	--	--	--	--	--	2.2E+01	5.2E+00	na	1.6E+04
DDD ^c	0	--	--	na	3.1E-03	--	--	na	3.1E-03	--	--	--	--	--	--	--	--	--	--	na	3.1E-03
DDE ^c	0	--	--	na	2.2E-03	--	--	na	2.2E-03	--	--	--	--	--	--	--	--	--	--	na	2.2E-03
DDT ^c	0	1.1E+00	1.0E-03	na	2.2E-03	1.1E+00	1.0E-03	na	2.2E-03	--	--	--	--	--	--	--	--	1.1E+00	1.0E-03	na	2.2E-03
Demeton	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	1.7E-01	1.7E-01	na	--	--	--	--	--	--	--	--	--	1.7E-01	1.7E-01	na	--
Dibenz(a,h)anthracene ^c	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	9.6E+02	--	--	--	--	--	--	--	--	--	--	na	9.6E+02
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	1.9E+02	--	--	--	--	--	--	--	--	--	--	na	1.9E+02
3,3-Dichlorobenzidine ^c	0	--	--	na	2.8E-01	--	--	na	2.8E-01	--	--	--	--	--	--	--	--	--	--	na	2.8E-01
Dichlorobromomethane ^c	0	--	--	na	1.7E+02	--	--	na	1.7E+02	--	--	--	--	--	--	--	--	--	--	na	1.7E+02
1,2-Dichloroethane ^c	0	--	--	na	3.7E+02	--	--	na	3.7E+02	--	--	--	--	--	--	--	--	--	--	na	3.7E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	7.1E+03	--	--	--	--	--	--	--	--	--	--	na	7.1E+03
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	1.0E+04	--	--	--	--	--	--	--	--	--	--	na	1.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	2.9E+02	--	--	--	--	--	--	--	--	--	--	na	2.9E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane ^c	0	--	--	na	1.5E+02	--	--	na	1.5E+02	--	--	--	--	--	--	--	--	--	--	na	1.5E+02
1,3-Dichloropropene ^c	0	--	--	na	2.1E+02	--	--	na	2.1E+02	--	--	--	--	--	--	--	--	--	--	na	2.1E+02
Dieldrin ^c	0	2.4E-01	5.6E-02	na	5.4E-04	2.4E-01	5.6E-02	na	5.4E-04	--	--	--	--	--	--	--	--	2.4E-01	5.6E-02	na	5.4E-04
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	4.4E+04	--	--	--	--	--	--	--	--	--	--	na	4.4E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	8.5E+02	--	--	--	--	--	--	--	--	--	--	na	8.5E+02
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	1.1E+06	--	--	--	--	--	--	--	--	--	--	na	1.1E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	4.5E+03	--	--	--	--	--	--	--	--	--	--	na	4.5E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
2,4-Dinitrotoluene ^c	0	--	--	na	3.4E+01	--	--	na	3.4E+01	--	--	--	--	--	--	--	--	--	--	na	3.4E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	5.1E-08	--	--	--	--	--	--	--	--	--	--	na	5.1E-08
1,2-Diphenylhydrazine ^c	0	--	--	na	2.0E+00	--	--	na	2.0E+00	--	--	--	--	--	--	--	--	--	--	na	2.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	2.2E-01	5.6E-02	na	8.9E+01	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	na	8.9E+01
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	2.2E-01	5.6E-02	--	--	--	--	--	--	--	--	--	--	2.2E-01	5.6E-02	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	8.9E+01	--	--	--	--	--	--	--	--	--	--	na	8.9E+01
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	8.6E-02	3.6E-02	na	6.0E-02	--	--	--	--	--	--	--	--	8.6E-02	3.6E-02	na	6.0E-02
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	3.0E-01	--	--	--	--	--	--	--	--	--	--	na	3.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	2.1E+03	--	--	--	--	--	--	--	--	--	--	na	2.1E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	5.3E+03	--	--	--	--	--	--	--	--	--	--	na	5.3E+03
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	1.0E-02	na	--	--	--	--	--	--	--	--	--	--	1.0E-02	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	7.9E-04	5.2E-01	3.8E-03	na	7.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	7.9E-04
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	3.9E-04	5.2E-01	3.8E-03	na	3.9E-04	--	--	--	--	--	--	--	--	5.2E-01	3.8E-03	na	3.9E-04
Hexachlorobenzene ^C	0	--	--	na	2.9E-03	--	--	na	2.9E-03	--	--	--	--	--	--	--	--	--	--	na	2.9E-03
Hexachlorobutadiene ^C	0	--	--	na	1.8E+02	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Hexachlorocyclohexane	0	--	--	na	4.9E-02	--	--	na	4.9E-02	--	--	--	--	--	--	--	--	--	--	na	4.9E-02
Alpha-BHC ^C	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Hexachlorocyclohexane	0	--	--	na	1.7E-01	--	--	na	1.7E-01	--	--	--	--	--	--	--	--	--	--	na	1.7E-01
Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	1.8E+00	9.5E-01	--	na	1.8E+00	--	--	--	--	--	--	--	--	9.5E-01	--	na	1.8E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	1.1E+03	--	--	--	--	--	--	--	--	--	--	na	1.1E+03
Hexachloroethane ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	2.0E+00	na	--	--	--	--	--	--	--	--	--	--	2.0E+00	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	1.8E-01	--	--	--	--	--	--	--	--	--	--	na	1.8E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone ^C	0	--	--	na	9.6E+03	--	--	na	9.6E+03	--	--	--	--	--	--	--	--	--	--	na	9.6E+03
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	4.9E+01	5.6E+00	na	--	--	--	--	--	--	--	--	--	4.9E+01	5.6E+00	na	--
Malathion	0	--	1.0E-01	na	--	--	1.0E-01	na	--	--	--	--	--	--	--	--	--	--	1.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	1.4E+00	7.7E-01	--	--	--	--	--	--	--	--	--	--	1.4E+00	7.7E-01	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	1.5E+03	--	--	--	--	--	--	--	--	--	--	na	1.5E+03
Methylene Chloride ^C	0	--	--	na	5.9E+03	--	--	na	5.9E+03	--	--	--	--	--	--	--	--	--	--	na	5.9E+03
Methoxychlor	0	--	3.0E-02	na	--	--	3.0E-02	na	--	--	--	--	--	--	--	--	--	--	3.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	1.0E+02	1.1E+01	na	4.6E+03	--	--	--	--	--	--	--	--	1.0E+02	1.1E+01	na	4.6E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	6.9E+02	--	--	--	--	--	--	--	--	--	--	na	6.9E+02
N-Nitrosodimethylamine ^C	0	--	--	na	3.0E+01	--	--	na	3.0E+01	--	--	--	--	--	--	--	--	--	--	na	3.0E+01
N-Nitrosodiphenylamine ^C	0	--	--	na	6.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodi-n-propylamine ^C	0	--	--	na	5.1E+00	--	--	na	5.1E+00	--	--	--	--	--	--	--	--	--	--	na	5.1E+00
Nonylphenol	0	2.8E+01	6.6E+00	--	--	2.8E+01	6.6E+00	na	--	--	--	--	--	--	--	--	--	2.8E+01	6.6E+00	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	6.5E-02	1.3E-02	na	--	--	--	--	--	--	--	--	--	6.5E-02	1.3E-02	na	--
PCB Total ^C	0	--	1.4E-02	na	6.4E-04	--	1.4E-02	na	6.4E-04	--	--	--	--	--	--	--	--	--	1.4E-02	na	6.4E-04
Pentachlorophenol ^C	0	7.7E-03	5.9E-03	na	3.0E+01	7.7E-03	5.9E-03	na	3.0E+01	--	--	--	--	--	--	--	--	7.7E-03	5.9E-03	na	3.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	8.6E+05	--	--	--	--	--	--	--	--	--	--	na	8.6E+05
Pyrene	0	--	--	na	4.0E+03	--	--	na	4.0E+03	--	--	--	--	--	--	--	--	--	--	na	4.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	2.0E+01	5.0E+00	na	4.2E+03	--	--	--	--	--	--	--	--	2.0E+01	5.0E+00	na	4.2E+03
Silver	0	1.0E+00	--	na	--	1.0E+00	--	na	--	--	--	--	--	--	--	--	--	1.0E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	4.0E+01	--	--	--	--	--	--	--	--	--	--	na	4.0E+01
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	3.3E+01	--	--	--	--	--	--	--	--	--	--	na	3.3E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	4.7E-01	--	--	--	--	--	--	--	--	--	--	na	4.7E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	6.0E+03	--	--	--	--	--	--	--	--	--	--	na	6.0E+03
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	7.3E-01	2.0E-04	na	2.8E-03	--	--	--	--	--	--	--	--	7.3E-01	2.0E-04	na	2.8E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	4.6E-01	7.2E-02	na	--	--	--	--	--	--	--	--	--	4.6E-01	7.2E-02	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	7.0E+01	--	--	--	--	--	--	--	--	--	--	na	7.0E+01
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	1.6E+02	--	--	--	--	--	--	--	--	--	--	na	1.6E+02
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride ^C	0	--	--	na	2.4E+01	--	--	na	2.4E+01	--	--	--	--	--	--	--	--	--	--	na	2.4E+01
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	6.5E+01	6.6E+01	na	2.6E+04	--	--	--	--	--	--	--	--	6.5E+01	6.6E+01	na	2.6E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = $(0.25(\text{WQC} - \text{background conc.}) + \text{background conc.})$ for acute and chronic
= $(0.1(\text{WQC} - \text{background conc.}) + \text{background conc.})$ for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	6.4E+02
Arsenic	9.0E+01
Barium	na
Cadmium	3.9E-01
Chromium III	2.5E+01
Chromium VI	6.4E+00
Copper	2.8E+00
Iron	na
Lead	3.4E+00
Manganese	na
Mercury	4.6E-01
Nickel	6.8E+00
Selenium	3.0E+00
Silver	4.2E-01
Zinc	2.6E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

FRESHWATER WATER QUALITY CRITERIA / WASTELOAD ALLOCATION ANALYSIS

Facility Name: **Fort Belvoir**
Receiving Stream: **Dogoe Creek and Gunston Cove**

Permit No.: **VA0092771**

Version: OWP Guidance Memo 00-2011 (8/24/00)

Stream Information		Stream Flows		Mixing Information		Effluent Information	
Mean Hardness (as CaCO3) =	50 mg/L	1Q10 (Annual) =	1 MGD	Annual - 1Q10 Mix =	100 %	Mean Hardness (as CaCO3) =	50 mg/L
90% Temperature (Annual) =	25 deg C	7Q10 (Annual) =	1 MGD	- 7Q10 Mix =	100 %	90% Temp (Annual) =	25 deg C
90% Temperature (Wet season) =	deg C	30Q10 (Annual) =	1 MGD	- 30Q10 Mix =	100 %	90% Temp (Wet season) =	deg C
90% Maximum pH =	8 SU	1Q10 (Wet season) =	1 MGD	Wet Season - 1Q10 Mix =	100 %	90% Maximum pH =	8 SU
10% Maximum pH =	SU	30Q10 (Wet season) =	1 MGD	- 30Q10 Mix =	100 %	10% Maximum pH =	SU
Tier Designation (1 or 2) =	1	30Q5 =	1 MGD			Discharge Flow =	1 MGD
Public Water Supply (PWS) Y/N? =	n	Harmonic Mean =	1 MGD				
Trout Present Y/N? =	n						
Early Life Stages Present Y/N? =	y						

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Acenaphthene	0	--	--	na	9.9E+02	--	--	na	2.0E+03	--	--	--	--	--	--	--	--	--	--	na	2.0E+03
Acrolein	0	--	--	na	9.3E+00	--	--	na	1.9E+01	--	--	--	--	--	--	--	--	--	--	na	1.9E+01
Acrylonitrile ^c	0	--	--	na	2.5E+00	--	--	na	5.0E+00	--	--	--	--	--	--	--	--	--	--	na	5.0E+00
Aldrin ^c	0	3.0E+00	--	na	5.0E-04	6.0E+00	--	na	1.0E-03	--	--	--	--	--	--	--	--	6.0E+00	--	na	1.0E-03
Ammonia-N (mg/l) (Yearly)	0	8.41E+00	1.24E+00	na	--	1.68E+01	2.48E+00	na	--	--	--	--	--	--	--	--	--	1.68E+01	2.48E+00	na	--
Ammonia-N (mg/l) (High Flow)	0	8.41E+00	2.43E+00	na	--	1.68E+01	4.87E+00	na	--	--	--	--	--	--	--	--	--	1.68E+01	4.87E+00	na	--
Anthracene	0	--	--	na	4.0E+04	--	--	na	8.0E+04	--	--	--	--	--	--	--	--	--	--	na	8.0E+04
Antimony	0	--	--	na	6.4E+02	--	--	na	1.3E+03	--	--	--	--	--	--	--	--	--	--	na	1.3E+03
Arsenic	0	3.4E+02	1.5E+02	na	--	6.8E+02	3.0E+02	na	--	--	--	--	--	--	--	--	--	6.8E+02	3.0E+02	na	--
Barium	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Benzene ^c	0	--	--	na	5.1E+02	--	--	na	1.0E+03	--	--	--	--	--	--	--	--	--	--	na	1.0E+03
Benzidine ^c	0	--	--	na	2.0E-03	--	--	na	4.0E-03	--	--	--	--	--	--	--	--	--	--	na	4.0E-03
Benzo (a) anthracene ^c	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (b) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (k) fluoranthene ^c	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Benzo (a) pyrene ^c	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Bis2-Chloroethyl Ether ^c	0	--	--	na	5.3E+00	--	--	na	1.1E+01	--	--	--	--	--	--	--	--	--	--	na	1.1E+01
Bis2-Chloroisopropyl Ether	0	--	--	na	6.5E+04	--	--	na	1.3E+05	--	--	--	--	--	--	--	--	--	--	na	1.3E+05
Bis 2-Ethylhexyl Phthalate ^c	0	--	--	na	2.2E+01	--	--	na	4.4E+01	--	--	--	--	--	--	--	--	--	--	na	4.4E+01
Bromoform ^c	0	--	--	na	1.4E+03	--	--	na	2.8E+03	--	--	--	--	--	--	--	--	--	--	na	2.8E+03
Butylbenzylphthalate	0	--	--	na	1.9E+03	--	--	na	3.8E+03	--	--	--	--	--	--	--	--	--	--	na	3.8E+03
Cadmium	0	1.8E+00	6.6E-01	na	--	3.6E+00	1.3E+00	na	--	--	--	--	--	--	--	--	--	3.6E+00	1.3E+00	na	--
Carbon Tetrachloride ^c	0	--	--	na	1.6E+01	--	--	na	3.2E+01	--	--	--	--	--	--	--	--	--	--	na	3.2E+01
Chlordane ^c	0	2.4E+00	4.3E-03	na	8.1E-03	4.8E+00	8.6E-03	na	1.6E-02	--	--	--	--	--	--	--	--	4.8E+00	8.6E-03	na	1.6E-02
Chloride	0	8.6E+05	2.3E+05	na	--	1.7E+06	4.6E+05	na	--	--	--	--	--	--	--	--	--	1.7E+06	4.6E+05	na	--
TRC	0	1.9E+01	1.1E+01	na	--	3.8E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.8E+01	2.2E+01	na	--
Chlorobenzene	0	--	--	na	1.6E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Chlorodibromomethane ^C	0	--	--	na	1.3E+02	--	--	na	2.6E+02	--	--	--	--	--	--	--	--	--	--	na	2.6E+02
Chloroform	0	--	--	na	1.1E+04	--	--	na	2.2E+04	--	--	--	--	--	--	--	--	--	--	na	2.2E+04
2-Chloronaphthalene	0	--	--	na	1.6E+03	--	--	na	3.2E+03	--	--	--	--	--	--	--	--	--	--	na	3.2E+03
2-Chlorophenol	0	--	--	na	1.5E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
Chlorpyrifos	0	8.3E-02	4.1E-02	na	--	1.7E-01	8.2E-02	na	--	--	--	--	--	--	--	--	--	1.7E-01	8.2E-02	na	--
Chromium III	0	3.2E+02	4.2E+01	na	--	6.5E+02	8.4E+01	na	--	--	--	--	--	--	--	--	--	6.5E+02	8.4E+01	na	--
Chromium VI	0	1.6E+01	1.1E+01	na	--	3.2E+01	2.2E+01	na	--	--	--	--	--	--	--	--	--	3.2E+01	2.2E+01	na	--
Chromium, Total	0	--	--	1.0E+02	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Chrysene ^C	0	--	--	na	1.8E-02	--	--	na	3.6E-02	--	--	--	--	--	--	--	--	--	--	na	3.6E-02
Copper	0	7.0E+00	5.0E+00	na	--	1.4E+01	9.9E+00	na	--	--	--	--	--	--	--	--	--	1.4E+01	9.9E+00	na	--
Cyanide, Free	0	2.2E+01	5.2E+00	na	1.6E+04	4.4E+01	1.0E+01	na	3.2E+04	--	--	--	--	--	--	--	--	4.4E+01	1.0E+01	na	3.2E+04
DDD ^C	0	--	--	na	3.1E-03	--	--	na	6.2E-03	--	--	--	--	--	--	--	--	--	--	na	6.2E-03
DDE ^C	0	--	--	na	2.2E-03	--	--	na	4.4E-03	--	--	--	--	--	--	--	--	--	--	na	4.4E-03
DDT ^C	0	1.1E+00	1.0E-03	na	2.2E-03	2.2E+00	2.0E-03	na	4.4E-03	--	--	--	--	--	--	--	--	2.2E+00	2.0E-03	na	4.4E-03
Demeton	0	--	1.0E-01	na	--	--	2.0E-01	na	--	--	--	--	--	--	--	--	--	--	2.0E-01	na	--
Diazinon	0	1.7E-01	1.7E-01	na	--	3.4E-01	3.4E-01	na	--	--	--	--	--	--	--	--	--	3.4E-01	3.4E-01	na	--
Dibenz(a,h)anthracene ^C	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
1,2-Dichlorobenzene	0	--	--	na	1.3E+03	--	--	na	2.6E+03	--	--	--	--	--	--	--	--	--	--	na	2.6E+03
1,3-Dichlorobenzene	0	--	--	na	9.6E+02	--	--	na	1.9E+03	--	--	--	--	--	--	--	--	--	--	na	1.9E+03
1,4-Dichlorobenzene	0	--	--	na	1.9E+02	--	--	na	3.8E+02	--	--	--	--	--	--	--	--	--	--	na	3.8E+02
3,3-Dichlorobenzidine ^C	0	--	--	na	2.8E-01	--	--	na	5.6E-01	--	--	--	--	--	--	--	--	--	--	na	5.6E-01
Dichlorobromomethane ^C	0	--	--	na	1.7E+02	--	--	na	3.4E+02	--	--	--	--	--	--	--	--	--	--	na	3.4E+02
1,2-Dichloroethane ^C	0	--	--	na	3.7E+02	--	--	na	7.4E+02	--	--	--	--	--	--	--	--	--	--	na	7.4E+02
1,1-Dichloroethylene	0	--	--	na	7.1E+03	--	--	na	1.4E+04	--	--	--	--	--	--	--	--	--	--	na	1.4E+04
1,2-trans-dichloroethylene	0	--	--	na	1.0E+04	--	--	na	2.0E+04	--	--	--	--	--	--	--	--	--	--	na	2.0E+04
2,4-Dichlorophenol	0	--	--	na	2.9E+02	--	--	na	5.8E+02	--	--	--	--	--	--	--	--	--	--	na	5.8E+02
2,4-Dichlorophenoxy acetic acid (2,4-D)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,2-Dichloropropane ^C	0	--	--	na	1.5E+02	--	--	na	3.0E+02	--	--	--	--	--	--	--	--	--	--	na	3.0E+02
1,3-Dichloropropene ^C	0	--	--	na	2.1E+02	--	--	na	4.2E+02	--	--	--	--	--	--	--	--	--	--	na	4.2E+02
Dieldrin ^C	0	2.4E-01	5.6E-02	na	5.4E-04	4.8E-01	1.1E-01	na	1.1E-03	--	--	--	--	--	--	--	--	4.8E-01	1.1E-01	na	1.1E-03
Diethyl Phthalate	0	--	--	na	4.4E+04	--	--	na	8.8E+04	--	--	--	--	--	--	--	--	--	--	na	8.8E+04
2,4-Dimethylphenol	0	--	--	na	8.5E+02	--	--	na	1.7E+03	--	--	--	--	--	--	--	--	--	--	na	1.7E+03
Dimethyl Phthalate	0	--	--	na	1.1E+06	--	--	na	2.2E+06	--	--	--	--	--	--	--	--	--	--	na	2.2E+06
Di-n-Butyl Phthalate	0	--	--	na	4.5E+03	--	--	na	9.0E+03	--	--	--	--	--	--	--	--	--	--	na	9.0E+03
2,4 Dinitrophenol	0	--	--	na	5.3E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
2-Methyl-4,6-Dinitrophenol	0	--	--	na	2.8E+02	--	--	na	5.6E+02	--	--	--	--	--	--	--	--	--	--	na	5.6E+02
2,4-Dinitrotoluene ^C	0	--	--	na	3.4E+01	--	--	na	6.8E+01	--	--	--	--	--	--	--	--	--	--	na	6.8E+01
Dioxin 2,3,7,8- tetrachlorodibenzo-p-dioxin	0	--	--	na	5.1E-08	--	--	na	1.0E-07	--	--	--	--	--	--	--	--	--	--	na	1.0E-07
1,2-Diphenylhydrazine ^C	0	--	--	na	2.0E+00	--	--	na	4.0E+00	--	--	--	--	--	--	--	--	--	--	na	4.0E+00
Alpha-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	4.4E-01	1.1E-01	na	1.8E+02	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	na	1.8E+02
Beta-Endosulfan	0	2.2E-01	5.6E-02	na	8.9E+01	4.4E-01	1.1E-01	na	1.8E+02	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	na	1.8E+02
Alpha + Beta Endosulfan	0	2.2E-01	5.6E-02	--	--	4.4E-01	1.1E-01	--	--	--	--	--	--	--	--	--	--	4.4E-01	1.1E-01	--	--
Endosulfan Sulfate	0	--	--	na	8.9E+01	--	--	na	1.8E+02	--	--	--	--	--	--	--	--	--	--	na	1.8E+02
Endrin	0	8.6E-02	3.6E-02	na	6.0E-02	1.7E-01	7.2E-02	na	1.2E-01	--	--	--	--	--	--	--	--	1.7E-01	7.2E-02	na	1.2E-01
Endrin Aldehyde	0	--	--	na	3.0E-01	--	--	na	6.0E-01	--	--	--	--	--	--	--	--	--	--	na	6.0E-01

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Ethylbenzene	0	--	--	na	2.1E+03	--	--	na	4.2E+03	--	--	--	--	--	--	--	--	--	--	na	4.2E+03
Fluoranthene	0	--	--	na	1.4E+02	--	--	na	2.8E+02	--	--	--	--	--	--	--	--	--	--	na	2.8E+02
Fluorene	0	--	--	na	5.3E+03	--	--	na	1.1E+04	--	--	--	--	--	--	--	--	--	--	na	1.1E+04
Foaming Agents	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Guthion	0	--	1.0E-02	na	--	--	2.0E-02	na	--	--	--	--	--	--	--	--	--	--	2.0E-02	na	--
Heptachlor ^C	0	5.2E-01	3.8E-03	na	7.9E-04	1.0E+00	7.6E-03	na	1.6E-03	--	--	--	--	--	--	--	--	1.0E+00	7.6E-03	na	1.6E-03
Heptachlor Epoxide ^C	0	5.2E-01	3.8E-03	na	3.9E-04	1.0E+00	7.6E-03	na	7.8E-04	--	--	--	--	--	--	--	--	1.0E+00	7.6E-03	na	7.8E-04
Hexachlorobenzene ^C	0	--	--	na	2.9E-03	--	--	na	5.8E-03	--	--	--	--	--	--	--	--	--	--	na	5.8E-03
Hexachlorobutadiene ^C	0	--	--	na	1.8E+02	--	--	na	3.6E+02	--	--	--	--	--	--	--	--	--	--	na	3.6E+02
Hexachlorocyclohexane																					
Alpha-BHC ^C	0	--	--	na	4.9E-02	--	--	na	9.8E-02	--	--	--	--	--	--	--	--	--	--	na	9.8E-02
Hexachlorocyclohexane																					
Beta-BHC ^C	0	--	--	na	1.7E-01	--	--	na	3.4E-01	--	--	--	--	--	--	--	--	--	--	na	3.4E-01
Hexachlorocyclohexane																					
Gamma-BHC ^C (Lindane)	0	9.5E-01	na	na	1.8E+00	1.9E+00	--	na	3.6E+00	--	--	--	--	--	--	--	--	1.9E+00	--	na	3.6E+00
Hexachlorocyclopentadiene	0	--	--	na	1.1E+03	--	--	na	2.2E+03	--	--	--	--	--	--	--	--	--	--	na	2.2E+03
Hexachloroethane ^C	0	--	--	na	3.3E+01	--	--	na	6.6E+01	--	--	--	--	--	--	--	--	--	--	na	6.6E+01
Hydrogen Sulfide	0	--	2.0E+00	na	--	--	4.0E+00	na	--	--	--	--	--	--	--	--	--	--	4.0E+00	na	--
Indeno (1,2,3-cd) pyrene ^C	0	--	--	na	1.8E-01	--	--	na	3.6E-01	--	--	--	--	--	--	--	--	--	--	na	3.6E-01
Iron	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Isophorone ^C	0	--	--	na	9.6E+03	--	--	na	1.9E+04	--	--	--	--	--	--	--	--	--	--	na	1.9E+04
Kepone	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Lead	0	4.9E+01	5.6E+00	na	--	9.8E+01	1.1E+01	na	--	--	--	--	--	--	--	--	--	9.8E+01	1.1E+01	na	--
Malathion	0	--	1.0E-01	na	--	--	2.0E-01	na	--	--	--	--	--	--	--	--	--	--	2.0E-01	na	--
Manganese	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Mercury	0	1.4E+00	7.7E-01	--	--	2.8E+00	1.5E+00	--	--	--	--	--	--	--	--	--	--	2.8E+00	1.5E+00	--	--
Methyl Bromide	0	--	--	na	1.5E+03	--	--	na	3.0E+03	--	--	--	--	--	--	--	--	--	--	na	3.0E+03
Methylene Chloride ^C	0	--	--	na	5.9E+03	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Methoxychlor	0	--	3.0E-02	na	--	--	6.0E-02	na	--	--	--	--	--	--	--	--	--	--	6.0E-02	na	--
Mirex	0	--	0.0E+00	na	--	--	0.0E+00	na	--	--	--	--	--	--	--	--	--	--	0.0E+00	na	--
Nickel	0	1.0E+02	1.1E+01	na	4.6E+03	2.0E+02	2.3E+01	na	9.2E+03	--	--	--	--	--	--	--	--	2.0E+02	2.3E+01	na	9.2E+03
Nitrate (as N)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Nitrobenzene	0	--	--	na	6.9E+02	--	--	na	1.4E+03	--	--	--	--	--	--	--	--	--	--	na	1.4E+03
N-Nitrosodimethylamine ^C	0	--	--	na	3.0E+01	--	--	na	6.0E+01	--	--	--	--	--	--	--	--	--	--	na	6.0E+01
N-Nitrosodiphenylamine ^C	0	--	--	na	6.0E+01	--	--	na	1.2E+02	--	--	--	--	--	--	--	--	--	--	na	1.2E+02
N-Nitrosodi-n-propylamine ^C	0	--	--	na	5.1E+00	--	--	na	1.0E+01	--	--	--	--	--	--	--	--	--	--	na	1.0E+01
Nonylphenol	0	2.8E+01	6.6E+00	--	--	5.6E+01	1.3E+01	na	--	--	--	--	--	--	--	--	--	5.6E+01	1.3E+01	na	--
Parathion	0	6.5E-02	1.3E-02	na	--	1.3E-01	2.6E-02	na	--	--	--	--	--	--	--	--	--	1.3E-01	2.6E-02	na	--
PCB Total ^C	0	--	1.4E-02	na	6.4E-04	--	2.8E-02	na	1.3E-03	--	--	--	--	--	--	--	--	--	2.8E-02	na	1.3E-03
Pentachlorophenol ^C	0	7.7E-03	5.9E-03	na	3.0E+01	1.5E-02	1.2E-02	na	6.0E+01	--	--	--	--	--	--	--	--	1.5E-02	1.2E-02	na	6.0E+01
Phenol	0	--	--	na	8.6E+05	--	--	na	1.7E+06	--	--	--	--	--	--	--	--	--	--	na	1.7E+06
Pyrene	0	--	--	na	4.0E+03	--	--	na	8.0E+03	--	--	--	--	--	--	--	--	--	--	na	8.0E+03
Radionuclides	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Gross Alpha Activity (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Beta and Photon Activity (mrem/yr)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Radium 226 + 228 (pCi/L)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Uranium (ug/l)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--

Parameter (ug/l unless noted)	Background Conc.	Water Quality Criteria				Wasteload Allocations				Antidegradation Baseline				Antidegradation Allocations				Most Limiting Allocations			
		Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH	Acute	Chronic	HH (PWS)	HH
Selenium, Total Recoverable	0	2.0E+01	5.0E+00	na	4.2E+03	4.0E+01	1.0E+01	na	8.4E+03	--	--	--	--	--	--	--	--	4.0E+01	1.0E+01	na	8.4E+03
Silver	0	1.0E+00	--	na	--	2.1E+00	--	na	--	--	--	--	--	--	--	--	--	2.1E+00	--	na	--
Sulfate	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
1,1,2,2-Tetrachloroethane ^C	0	--	--	na	4.0E+01	--	--	na	8.0E+01	--	--	--	--	--	--	--	--	--	--	na	8.0E+01
Tetrachloroethylene ^C	0	--	--	na	3.3E+01	--	--	na	6.6E+01	--	--	--	--	--	--	--	--	--	--	na	6.6E+01
Thallium	0	--	--	na	4.7E-01	--	--	na	9.4E-01	--	--	--	--	--	--	--	--	--	--	na	9.4E-01
Toluene	0	--	--	na	6.0E+03	--	--	na	1.2E+04	--	--	--	--	--	--	--	--	--	--	na	1.2E+04
Total dissolved solids	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Toxaphene ^C	0	7.3E-01	2.0E-04	na	2.8E-03	1.5E+00	4.0E-04	na	5.6E-03	--	--	--	--	--	--	--	--	1.5E+00	4.0E-04	na	5.6E-03
Tributyltin	0	4.6E-01	7.2E-02	na	--	9.2E-01	1.4E-01	na	--	--	--	--	--	--	--	--	--	9.2E-01	1.4E-01	na	--
1,2,4-Trichlorobenzene	0	--	--	na	7.0E+01	--	--	na	1.4E+02	--	--	--	--	--	--	--	--	--	--	na	1.4E+02
1,1,2-Trichloroethane ^C	0	--	--	na	1.6E+02	--	--	na	3.2E+02	--	--	--	--	--	--	--	--	--	--	na	3.2E+02
Trichloroethylene ^C	0	--	--	na	3.0E+02	--	--	na	6.0E+02	--	--	--	--	--	--	--	--	--	--	na	6.0E+02
2,4,6-Trichlorophenol ^C	0	--	--	na	2.4E+01	--	--	na	4.8E+01	--	--	--	--	--	--	--	--	--	--	na	4.8E+01
2-(2,4,5-Trichlorophenoxy) propionic acid (Silvex)	0	--	--	na	--	--	--	na	--	--	--	--	--	--	--	--	--	--	--	na	--
Vinyl Chloride ^C	0	--	--	na	2.4E+01	--	--	na	4.8E+01	--	--	--	--	--	--	--	--	--	--	na	4.8E+01
Zinc	0	6.5E+01	6.6E+01	na	2.6E+04	1.3E+02	1.3E+02	na	5.2E+04	--	--	--	--	--	--	--	--	1.3E+02	1.3E+02	na	5.2E+04

Notes:

- All concentrations expressed as micrograms/liter (ug/l), unless noted otherwise
- Discharge flow is highest monthly average or Form 2C maximum for Industries and design flow for Municipals
- Metals measured as Dissolved, unless specified otherwise
- "C" indicates a carcinogenic parameter
- Regular WLAs are mass balances (minus background concentration) using the % of stream flow entered above under Mixing Information.
Antidegradation WLAs are based upon a complete mix.
- Antideg. Baseline = $(0.25(WQC - \text{background conc.}) + \text{background conc.})$ for acute and chronic
= $(0.1(WQC - \text{background conc.}) + \text{background conc.})$ for human health
- WLAs established at the following stream flows: 1Q10 for Acute, 30Q10 for Chronic Ammonia, 7Q10 for Other Chronic, 30Q5 for Non-carcinogens and Harmonic Mean for Carcinogens. To apply mixing ratios from a model set the stream flow equal to (mixing ratio - 1), effluent flow equal to 1 and 100% mix.

Metal	Target Value (SSTV)
Antimony	1.3E+03
Arsenic	1.8E+02
Barium	na
Cadmium	7.9E-01
Chromium III	5.0E+01
Chromium VI	1.3E+01
Copper	5.6E+00
Iron	na
Lead	6.7E+00
Manganese	na
Mercury	9.2E-01
Nickel	1.4E+01
Selenium	6.0E+00
Silver	8.4E-01
Zinc	5.2E+01

Note: do not use QL's lower than the minimum QL's provided in agency guidance

6/19/2015 2:18:55 PM

Facility = Fort Belvoir - Outfall 001

Chemical = Copper

Chronic averaging period = 30

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 15

Variance = 81

C.V. = 0.6

97th percentile daily values = 36.5012

97th percentile 4 day average = 24.9568

97th percentile 30 day average = 18.0907

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

15

6/19/2015 2:20:50 PM

Facility = Fort Belvoir - Outfall 004

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 3

Variance = 3.24

C.V. = 0.6

97th percentile daily values = 7.30025

97th percentile 4 day average = 4.99137

97th percentile 30 day average = 3.61815

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

3

6/19/2015 2:21:48 PM

Facility = Fort Belvoir - Outfall 005

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 6

Variance = 12.96

C.V. = 0.6

97th percentile daily values = 14.6005

97th percentile 4 day average = 9.98274

97th percentile 30 day average = 7.23631

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

6

6/19/2015 2:26:07 PM

Facility = Fort Belvoir - Outfall 005

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 22

Variance = 174.24

C.V. = 0.6

97th percentile daily values = 53.5351

97th percentile 4 day average = 36.6033

97th percentile 30 day average = 26.5331

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

22

6/19/2015 2:24:57 PM

Facility = Fort Belvoir - Outfall 005

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 3.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 20

Variance = 144

C.V. = 0.6

97th percentile daily values = 48.6683

97th percentile 4 day average = 33.2758

97th percentile 30 day average = 24.1210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 8.1904187906981

Average Weekly limit = 8.19041879069809

Average Monthly Limit = 8.19041879069809

The data are:

20

6/19/2015 2:27:19 PM

Facility = Fort Belvoir - Outfall 005

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 6.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 8

Variance = 23.04

C.V. = 0.6

97th percentile daily values = 19.4673

97th percentile 4 day average = 13.3103

97th percentile 30 day average = 9.64842

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 16.0883226245855

Average Weekly limit = 16.0883226245855

Average Monthly Limit = 16.0883226245855

The data are:

8

6/19/2015 2:28:05 PM

Facility = Fort Belvoir - Outfall 007

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 6

Variance = 12.96

C.V. = 0.6

97th percentile daily values = 14.6005

97th percentile 4 day average = 9.98274

97th percentile 30 day average = 7.23631

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

6

6/19/2015 2:28:50 PM

Facility = Fort Belvoir - Outfall 007

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 3.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 3330

Variance = 3992004

C.V. = 0.6

97th percentile daily values = 8103.28

97th percentile 4 day average = 5540.42

97th percentile 30 day average = 4016.15

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 8.1904187906981

Average Weekly limit = 8.1904187906981

Average Monthly Limit = 8.1904187906981

The data are:

3330

6/19/2015 2:29:31 PM

Facility = Fort Belvoir - Outfall 007

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 5

Variance = 9

C.V. = 0.6

97th percentile daily values = 12.1670

97th percentile 4 day average = 8.31895

97th percentile 30 day average = 6.03026

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

5

6/19/2015 2:30:44 PM

Facility = Fort Belvoir - Outfall 008

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 8

Variance = 23.04

C.V. = 0.6

97th percentile daily values = 19.4673

97th percentile 4 day average = 13.3103

97th percentile 30 day average = 9.64842

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

8

6/19/2015 2:31:36 PM

Facility = Fort Belvoir - Outfall 008

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 2

Variance = 1.44

C.V. = 0.6

97th percentile daily values = 4.86683

97th percentile 4 day average = 3.32758

97th percentile 30 day average = 2.41210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2

6/19/2015 2:32:13 PM

Facility = Fort Belvoir - Outfall 009

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 23

Variance = 190.44

C.V. = 0.6

97th percentile daily values = 55.9686

97th percentile 4 day average = 38.2671

97th percentile 30 day average = 27.7392

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

23

6/19/2015 2:33:01 PM

Facility = Fort Belvoir - Outfall 009

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 6.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 7

Variance = 17.64

C.V. = 0.6

97th percentile daily values = 17.0339

97th percentile 4 day average = 11.6465

97th percentile 30 day average = 8.44237

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 16.0883226245855

Average Weekly limit = 16.0883226245855

Average Monthly Limit = 16.0883226245855

The data are:

7

6/19/2015 2:33:45 PM

Facility = Fort Belvoir - Outfall 012

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 5

Variance = 9

C.V. = 0.6

97th percentile daily values = 12.1670

97th percentile 4 day average = 8.31895

97th percentile 30 day average = 6.03026

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

5

6/19/2015 2:34:20 PM

Facility = Fort Belvoir - Outfall 012

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 30

Variance = 324

C.V. = 0.6

97th percentile daily values = 73.0025

97th percentile 4 day average = 49.9137

97th percentile 30 day average = 36.1815

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

30

6/19/2015 2:34:56 PM

Facility = Fort Belvoir - Outfall 012

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 4

Variance = 5.76

C.V. = 0.6

97th percentile daily values = 9.73367

97th percentile 4 day average = 6.65516

97th percentile 30 day average = 4.82421

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

4

6/19/2015 2:35:44 PM

Facility = Fort Belvoir - Outfall 013

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 2

Variance = 1.44

C.V. = 0.6

97th percentile daily values = 4.86683

97th percentile 4 day average = 3.32758

97th percentile 30 day average = 2.41210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2

6/19/2015 2:36:23 PM

Facility = Fort Belvoir - Outfall 013

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 18

Variance = 116.64

C.V. = 0.6

97th percentile daily values = 43.8015

97th percentile 4 day average = 29.9482

97th percentile 30 day average = 21.7089

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

18

6/19/2015 2:37:01 PM

Facility = Fort Belvoir - Outfall 013

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 2

Variance = 1.44

C.V. = 0.6

97th percentile daily values = 4.86683

97th percentile 4 day average = 3.32758

97th percentile 30 day average = 2.41210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2

6/19/2015 2:37:43 PM

Facility = Fort Belvoir - Outfall 013

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 6.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value =

Variance =

C.V. =

97th percentile daily values =

97th percentile 4 day average = 3.32758

97th percentile 30 day average = 2.41210

< Q.L. = 1

Model used =

No Limit is required for this material

The data are:

3

6/19/2015 2:38:28 PM

Facility = Fort Belvoir - Outfall 014

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 4

Variance = 5.76

C.V. = 0.6

97th percentile daily values = 9.73367

97th percentile 4 day average = 6.65516

97th percentile 30 day average = 4.82421

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

4

6/19/2015 2:39:08 PM

Facility = Fort Belvoir - Outfall 014

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 36

Variance = 466.56

C.V. = 0.6

97th percentile daily values = 87.6030

97th percentile 4 day average = 59.8964

97th percentile 30 day average = 43.4179

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

36

6/19/2015 2:39:45 PM

Facility = Fort Belvoir - Outfall 014

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 2

Variance = 1.44

C.V. = 0.6

97th percentile daily values = 4.86683

97th percentile 4 day average = 3.32758

97th percentile 30 day average = 2.41210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2

6/19/2015 2:40:22 PM

Facility = Fort Belvoir - Outfall 014

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 3

Variance = 3.24

C.V. = 0.6

97th percentile daily values = 7.30025

97th percentile 4 day average = 4.99137

97th percentile 30 day average = 3.61815

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

3

6/19/2015 2:43:01 PM

Facility = Fort Belvoir - Outfall 015

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 6.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 6.8

Variance = 16.6464

C.V. = 0.6

97th percentile daily values = 16.5472

97th percentile 4 day average = 11.3137

97th percentile 30 day average = 8.20116

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 16

Average Weekly limit = 16

Average Monthly Limit = 16

The data are:

6.8

6/19/2015 2:43:41 PM

Facility = Fort Belvoir - Outfall 015

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 28

Variance = 282.24

C.V. = 0.6

97th percentile daily values = 68.1356

97th percentile 4 day average = 46.5861

97th percentile 30 day average = 33.7694

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 6.999999999999999

Average Monthly Limit = 6.999999999999999

The data are:

28

6/19/2015 2:44:21 PM

Facility = Fort Belvoir - Outfall 015

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 3.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 8.3

Variance = 24.8004

C.V. = 0.6

97th percentile daily values = 20.1973

97th percentile 4 day average = 13.8094

97th percentile 30 day average = 10.0102

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 8.1904187906981

Average Weekly limit = 8.1904187906981

Average Monthly Limit = 8.1904187906981

The data are:

8.3

9/28/2015 7:11:20 AM

Facility = Fort Belvoir - Outfall 016

Chemical = Chromium

Chronic averaging period = 4

WLAa = 33

WLAc = 22

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 2

Variance = 1.44

C.V. = 0.6

97th percentile daily values = 4.86683

97th percentile 4 day average = 3.32758

97th percentile 30 day average = 2.41210

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

2

9/28/2015 7:11:58 AM

Facility = Fort Belvoir - Outfall 016

Chemical = Copper

Chronic averaging period = 4

WLAa = 14

WLAc = 9.9

Q.L. = 5.6

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 11

Variance = 43.56

C.V. = 0.6

97th percentile daily values = 26.7675

97th percentile 4 day average = 18.3016

97th percentile 30 day average = 13.2665

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 14

Average Weekly limit = 14

Average Monthly Limit = 14

The data are:

11

9/28/2015 7:12:29 AM

Facility = Fort Belvoir - Outfall 016

Chemical = Lead

Chronic averaging period = 4

WLAa = 98

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 5

Variance = 9

C.V. = 0.6

97th percentile daily values = 12.1670

97th percentile 4 day average = 8.31895

97th percentile 30 day average = 6.03026

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

5

9/28/2015 7:13:02 AM

Facility = Fort Belvoir - Outfall 016

Chemical = Nickel

Chronic averaging period = 4

WLAa = 200

WLAc = 23

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 4

Variance = 5.76

C.V. = 0.6

97th percentile daily values = 9.73367

97th percentile 4 day average = 6.65516

97th percentile 30 day average = 4.82421

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

4

6/19/2015 2:48:24 PM

Facility = Fort Belvoir - Outfall 018

Chemical = Cadmium

Chronic averaging period = 4

WLAa = 1.8

WLAc = 0.66

Q.L. = 0.3

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value =

Variance =

C.V. =

97th percentile daily values =

97th percentile 4 day average = 6.65516

97th percentile 30 day average = 4.82421

< Q.L. = 1

Model used =

No Limit is required for this material

The data are:

0.274

6/19/2015 2:49:22 PM

Facility = Fort Belvoir - Outfall 018

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 1.6

Variance = .9216

C.V. = 0.6

97th percentile daily values = 3.89346

97th percentile 4 day average = 2.66206

97th percentile 30 day average = 1.92968

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1.6

6/19/2015 2:50:03 PM

Facility = Fort Belvoir - Outfall 018

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 87.3

Variance = 2743.66

C.V. = 0.6

97th percentile daily values = 212.437

97th percentile 4 day average = 145.248

97th percentile 30 day average = 105.288

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

87.3

6/19/2015 2:51:13 PM

Facility = Fort Belvoir - Outfall 018

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 3.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 27.9

Variance = 280.227

C.V. = 0.6

97th percentile daily values = 67.8923

97th percentile 4 day average = 46.4197

97th percentile 30 day average = 33.6488

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 8.1904187906981

Average Weekly limit = 8.1904187906981

Average Monthly Limit = 8.1904187906981

The data are:

27.9

6/19/2015 2:52:01 PM

Facility = Fort Belvoir - Outfall 018

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 1.6

Variance = .9216

C.V. = 0.6

97th percentile daily values = 3.89346

97th percentile 4 day average = 2.66206

97th percentile 30 day average = 1.92968

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1.6

6/19/2015 2:52:43 PM

Facility = Fort Belvoir - Outfall 018

Chemical = Silver

Chronic averaging period = 4

WLAa = 1

WLAc =

Q.L. = 0.2

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value =

Variance =

C.V. =

97th percentile daily values =

97th percentile 4 day average = 2.66206

97th percentile 30 day average= 1.92968

< Q.L. = 1

Model used =

No Limit is required for this material

The data are:

0.085

6/19/2015 2:53:27 PM

Facility = Fort Belvoir - Outfall 019

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 1.6

Variance = .9216

C.V. = 0.6

97th percentile daily values = 3.89346

97th percentile 4 day average = 2.66206

97th percentile 30 day average = 1.92968

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1.6

6/19/2015 2:54:07 PM

Facility = Fort Belvoir - Outfall 019

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 17.8

Variance = 114.062

C.V. = 0.6

97th percentile daily values = 43.3148

97th percentile 4 day average = 29.6154

97th percentile 30 day average = 21.4677

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

17.8

6/19/2015 2:54:42 PM

Facility = Fort Belvoir - Outfall 019

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 3.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 5.1

Variance = 9.3636

C.V. = 0.6

97th percentile daily values = 12.4104

97th percentile 4 day average = 8.48532

97th percentile 30 day average = 6.15087

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 8.1904187906981

Average Weekly limit = 8.1904187906981

Average Monthly Limit = 8.1904187906981

The data are:

5.1

7/7/2015 2:03:55 PM

Facility = Fort Belvoir - Outfall 019

Chemical = Mercury

Chronic averaging period = 4

WLAa = 1.4

WLAc = 0.77

Q.L. = 1.0

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 2.72

Variance = 2.66342

C.V. = 0.6

97th percentile daily values = 6.61889

97th percentile 4 day average = 4.52550

97th percentile 30 day average = 3.28046

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 1.12618258372099

Average Weekly limit = 1.12618258372099

Average Monthly Limit = 1.12618258372099

The data are:

2.72

6/19/2015 2:56:20 PM

Facility = Fort Belvoir - Outfall 019

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 1.7

Variance = 1.0404

C.V. = 0.6

97th percentile daily values = 4.13680

97th percentile 4 day average = 2.82844

97th percentile 30 day average = 2.05029

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

1.7

6/19/2015 2:57:11 PM

Facility = Fort Belvoir - Outfall 020

Chemical = Mercury

Chronic averaging period = 4

WLAa = 1.4

WLAc = 0.77

Q.L. = 1.0

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value =

Variance =

C.V. =

97th percentile daily values =

97th percentile 4 day average = 2.82844

97th percentile 30 day average = 2.05029

< Q.L. = 1

Model used =

No Limit is required for this material

The data are:

0.015

6/19/2015 2:57:53 PM

Facility = Fort Belvoir - Outfall 021

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 3

Variance = 3.24

C.V. = 0.6

97th percentile daily values = 7.30025

97th percentile 4 day average = 4.99137

97th percentile 30 day average = 3.61815

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

3

6/19/2015 2:58:52 PM

Facility = Fort Belvoir - Outfall 023

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 6.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 10

Variance = 36

C.V. = 0.6

97th percentile daily values = 24.3341

97th percentile 4 day average = 16.6379

97th percentile 30 day average = 12.0605

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 16

Average Weekly limit = 16

Average Monthly Limit = 16

The data are:

10

6/19/2015 2:59:37 PM

Facility = Fort Belvoir - Outfall 023

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 23

Variance = 190.44

C.V. = 0.6

97th percentile daily values = 55.9686

97th percentile 4 day average = 38.2671

97th percentile 30 day average = 27.7392

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

23

6/19/2015 3:00:11 PM

Facility = Fort Belvoir - Outfall 023

Chemical = Lead

Chronic averaging period = 4

WLAa = 49

WLAc = 5.6

Q.L. = 3.4

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 24

Variance = 207.36

C.V. = 0.6

97th percentile daily values = 58.4020

97th percentile 4 day average = 39.9309

97th percentile 30 day average = 28.9452

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Chronic Toxicity

Maximum Daily Limit = 8.19041879069809

Average Weekly limit = 8.19041879069809

Average Monthly Limit = 8.19041879069809

The data are:

24

6/19/2015 3:00:54 PM

Facility = Fort Belvoir - Outfall 023

Chemical = Mercury

Chronic averaging period = 4

WLAa = 1.4

WLAc = 0.77

Q.L. = 1.0

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value =

Variance =

C.V. =

97th percentile daily values =

97th percentile 4 day average = 39.9309

97th percentile 30 day average= 28.9452

< Q.L. = 1

Model used =

No Limit is required for this material

The data are:

0.3

6/19/2015 3:01:28 PM

Facility = Fort Belvoir - Outfall 023

Chemical = Nickel

Chronic averaging period = 4

WLAa = 100

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 6

Variance = 12.96

C.V. = 0.6

97th percentile daily values = 14.6005

97th percentile 4 day average = 9.98274

97th percentile 30 day average = 7.23631

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

6

6/19/2015 3:02:06 PM

Facility = Fort Belvoir - Outfall 024

Chemical = Chromium

Chronic averaging period = 4

WLAa = 16

WLAc = 11

Q.L. = 0.5

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 3

Variance = 3.24

C.V. = 0.6

97th percentile daily values = 7.30025

97th percentile 4 day average = 4.99137

97th percentile 30 day average = 3.61815

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

No Limit is required for this material

The data are:

3

6/19/2015 3:02:45 PM

Facility = Fort Belvoir - Outfall 024

Chemical = Copper

Chronic averaging period = 4

WLAa = 7

WLAc = 5

Q.L. = 2.8

samples/mo. = 1

samples/wk. = 1

Summary of Statistics:

observations = 1

Expected Value = 14

Variance = 70.56

C.V. = 0.6

97th percentile daily values = 34.0678

97th percentile 4 day average = 23.2930

97th percentile 30 day average = 16.8847

< Q.L. = 0

Model used = BPJ Assumptions, type 2 data

A limit is needed based on Acute Toxicity

Maximum Daily Limit = 7

Average Weekly limit = 7

Average Monthly Limit = 7

The data are:

14

Public Notice – Environmental Permit

PURPOSE OF NOTICE: To seek public comment on a draft permit from the Department of Environmental Quality that will allow the release of industrial stormwater into water bodies in Fairfax County, Virginia.

PUBLIC COMMENT PERIOD: TBD, 2016 to TBD, 2016

PERMIT NAME: Virginia Pollutant Discharge Elimination System Permit – Industrial stormwater issued by DEQ, under the authority of the State Water Control Board

The United States Department of the Army – U.S. Army Garrison Fort Belvoir, U.S. Route 1, Fort Belvoir, VA, 22060, VA0092771

PROJECT DESCRIPTION: The United States Department of the Army – U.S. Army Garrison Fort Belvoir has applied for a new permit for the federal U.S. Army Garrison Fort Belvoir installation. The applicant proposes to release industrial stormwater at variable rates into numerous water bodies. The facility proposes to release the industrial stormwater in Accotink Bay, UT; Accotink Creek, UT; Dogue Creek; Dogue Creek, UT; Gunston Cove; Gunston Cove, UT; Mason Run and Mason Run, UT in Fairfax County in the Potomac River watershed. A watershed is the land area drained by a river and its incoming streams. The permit will monitor the following pollutants to protect water quality: Flow, pH, Total Residual Chlorine, Total Suspended Solids, Total Petroleum Hydrocarbons, Biochemical Oxygen Demand, Chemical Oxygen Demand, Total Organic Carbon, Chloride, Specific Conductance, Dissolved Oxygen, Propylene Glycol, Oil and Grease, Ammonia, Total Nitrogen, Total Kjeldahl Nitrogen, Nitrate+Nitrite, Total Phosphorus, Total Hardness, Aluminum (Total Recoverable), Arsenic (Total Recoverable), Cadmium (Total Recoverable), Chromium (Dissolved), Copper (Dissolved and Total Recoverable), Iron (Total Recoverable), Lead (Dissolved and Total Recoverable), Magnesium (Total Recoverable), Mercury (Dissolved and Total Recoverable), Nickel (Dissolved), Selenium (Total Recoverable), Silver (Dissolved and Total Recoverable), Zinc (Total Recoverable), and Cyanide.

HOW TO COMMENT AND/OR REQUEST A PUBLIC HEARING: DEQ accepts comments and requests for public hearing by hand-delivery, e-mail, fax or postal mail. All comments and requests must be in writing and be received by DEQ during the comment period. Submittals must include the names, mailing addresses and telephone numbers of the commenter/requester and of all persons represented by the commenter/requester. A request for public hearing must also include: 1) The reason why a public hearing is requested. 2) A brief, informal statement regarding the nature and extent of the interest of the requester or of those represented by the requester, including how and to what extent such interest would be directly and adversely affected by the permit. 3) Specific references, where possible, to terms and conditions of the permit with suggested revisions. A public hearing may be held, including another comment period, if public response is significant, based on individual requests for a public hearing, and there are substantial, disputed issues relevant to the permit.

CONTACT FOR PUBLIC COMMENTS, DOCUMENT REQUESTS AND ADDITIONAL INFORMATION: The public may review the draft permit and application at the DEQ-Northern Regional Office by appointment, or may request electronic copies of the draft permit and fact sheet.

Name: Susan Mackert

Address: DEQ-Northern Regional Office, 13901 Crown Court, Woodbridge, VA 22193

Phone: (703) 583-3853 E-mail: susan.mackert@deq.virginia.gov Fax: (703) 583-3821

VA0092771 Industrial Stormwater Outfall Detailed Information (Additional Information as Requested by VADEQ)						Table 3510-2F-IVC-3: Structural and Non-Structure Control Measures by Drainage Area (From Permit Application)				VA0092771 Industrial Stormwater Outfall Overview Summary (Additional Information as Requested by VADEQ May 2015)		
Representative Outfall	Internal Outfall/ Structure ID	Latitude	Longitude	Receiving Water	'Common Name' & Comments	Representative Outfall ID Ref ID (MS4 ID)	Substantially Identical Effluent Outfalls	Applicable Standard Industrial Classification (SIC) Codes and Activities	Respective Control Measures (US)	Outfall Overview Summary		
001	4944	38°43'15"	-77°11'20"	Accotink Creek	DAAF North Near Telegraph Road	001 (4944) Airfield (N)	4942	4581 - air transportation 4959 - snow plowing/ street 5541 - fueling station 7538 - vehicle repair shop sweeping 7542 - car/equipment washing	OWS, SW systems (culvert, outfall and piping), WW systems, drainage trenches, retention ponds, covered loading areas and material handling areas, deicing areas, master spill plans, employee training, Good Housekeeping measures.	This outfall receives stormwater drainage flow from airfield operations (primarily the runway departure side). This section, also has a generator (with fuel supply) that is back up power for runway lights.		
	4942	38.71967817	-77.19082301	UT to Accotink Creek								
002	4951	38° 43' 6"	-77° 10' 41"	UT to Accotink Creek	DAAF East Large Bridge at Trail	002 (4951) Airfield (E)	4715, 4842, 4843, 4844, 4847, 4910, 4911, 4948, 4954, 4956, 4958, 4852, 4940, 4928, 4870, 4868	4581 - air transportation 4959 - snow plowing/ street 5541 - fueling station 7538 - vehicle repair shop sweeping 7542 - car/equipment washing	OWS, SW systems (culvert, outfall and piping), WW systems, drainage trenches, covered loading areas and material handling areas, deicing areas, master spill plans, employee training, Good Housekeeping measures.	This outfall receives stormwater drainage flow from airfield operations (primarily the runway departure side). This section, also has aircraft parking for both fixed wing and rotary aircraft, aircraft hangers, material storage areas, aircraft fueling, aircraft washrack.		
	4715	38.71621703	-77.17773844	UT to Accotink Creek								
	4842	38.71731187	-77.18307545	UT to Accotink Creek								
	4843	38.71731187	-77.18307545	UT to Accotink Creek								
	4844	38.7167186	-77.1822728	UT to Accotink Creek								
	4847	38 71889278	-77 18470029	UT to Accotink Creek								
	4868	38.71668541	-77 18469291	UT to Accotink Creek								
	4870	38.71602181	-77.18622345	UT to Accotink Creek								

	4910	38.71740743	-77.17696019	UT to Accotink Creek								
	4911	38.71338001	-77.18232863	UT to Accotink Creek								
	4928	38.71557414	-77.1865661	UT to Accotink Creek								
	4940	38.71766224	-77.18795305	UT to Accotink Creek								
	4948	38.72000196	-77.1800459	UT to Accotink Creek								
	4852	38.71816322	-77.18764124	UT to Accotink Creek								
	4954	38.71760784	-77.17891853	UT to Accotink Creek								
	4956	38.71779207	-77.17936889	UT to Accotink Creek								
	4958	38.71742302	-77.18011891	UT to Accotink Creek								
003	4991	38° 42' 37"	-77° 10' 15"	UT to Accotink Creek	DAAF South Parameter Roadway at Bridge	003 (4991) Airfield (S)	4668, 4669, 4670, 4671, 4696, 4706	4581 - air transportation 4959 - snow plowing/ street 4953 - landfill 5541 - fueling station 7538 - vehicle repair shop sweeping 7542 - car/equipment washing	OWS, SW systems (culvert, outfall and piping), WW systems, drainage trenches, covered loading areas and material handling areas, deicing areas, master spill plans, employee training, Good Housekeeping measures.	This outfall receives stormwater drainage flow from airfield operations (primarily the runway approach side). This section, also has aircraft parking for both fixed wing and rotary aircraft, aircraft hangers, material storage areas, aircraft fueling, aircraft washrack and fire department station with training facilities. In addition this draining area has two SWMU's that are closed with no further action for remediation.		
	4668	38.71035716	-77.17095464	UT to Accotink Creek								
	4669	38.7119633	-77.17500703	UT to Accotink Creek								
	4670	38.71365418	-77.17826064	UT to Accotink Creek								
	4671	38.71383791	-77.17814036	UT to Accotink Creek								

	4696	38.7144642	-77.17628988	UT to Accotink Creek								
	4706	38.71493057	-77.17712313	UT to Accotink Creek								
004	4437	38° 42' 26"	-77° 10' 21"	UT to Accotink Creek	SW Training/ Cullum Woods	004 (4437) Belvoir Training Area	3302, 3992, 3993, 4430, 4432, 4434, 4435, 4442, 4444, 4446, 4450, 4452	4953 - landfill	SW systems, erosion controls- swales, WW systems.	This outfall receives drainage from the southwest training area on post (south of US Route 1). The area contains closed landfills, a managed wildlife refuge and training (mostly land navigation). This outfall encompasses two closed landfills (not active), one of which is still actively monitored. The area has one roadway that circles the entire site and it has restricted access (additional gate access required).		
	3302	38.70156948	-77.16816095	UT to Accotink Creek								
	3992	38.70688395	-77.17994381	UT to Accotink Creek								
	3993	38.70689451	-77.17980349	UT to Accotink Creek								
	4430	38.70691387	-77.17838268	UT to Accotink Creek								
	4432	38.706784	-77.177007	UT to Accotink Creek								
	4434	38.70675604	-77.17729135	UT to Accotink Creek								
	4435	38.70694614	-77.1751911	UT to Accotink Creek								
	4442	38.70656636	-77.16883971	UT to Accotink Creek								
	4444	38.70523917	-77.16813002	UT to Accotink Creek								
	4446	38.70309616	-77.16732284	UT to Accotink Creek								
	4450	38.70432965	-77.1663616	UT to Accotink Creek								
	4452	38.70396855	-77.16636605	UT to Accotink Creek								

005	2758	38° 42' 6"	-77° 9' 15"	UT to Accotink Bay	HazWaste Bldg	005 (2758) HazWaste Facility (<90 day)	2759	4955 - hazardous waste storage and management	SW systems, drainage trenches, erosion controls - dry swales, covered loading/unloading areas.	This outfall encompasses the installations permitted hazardous waste storage facility on Sharon Lane. This drainage area includes the building, parking area, sidewalks, roadways, and storage in sea containers (on pavement). This site is also being sampled and monitored under the MS4 Permit for the PCB TMDL. The PCB TMDL Action Plan was submitted to the Northern Regional Office of VADEQ in October 2013 (no comments were received on the PCB TMDL Action Plan).
	2759	38 70170108	-77.15380065	UT to Accotink Creek						
006	2944	38° 41' 22"	-77° 8' 43"	UT to Gunston Cove	VANG MP Theote	006 (2944) Building VA National Guard Motor Pool	N/A (no other structure)	7538 - vehicle repair shop	SW systems, erosion controls - swales, culvert, Good Housekeeping measures.	This outfall encompasses drainage from the Virginia National Guard Motor Pool off of Theote Road. The motor pool stores a variety of equipment on site but any maintenance activity is performed at a different military installation (not on Fort Belvoir). The facility also can have storage of fuel on site for the equipment in small containers. The fuel can be stored under cover and with secondary containment.
007	2822	38° 41' 3"	-77° 8' 28"	UT to Gunston Cove	21st Steet Waste Facility	007 (2822) 21st Street Waste Facility	2823, 2829, 2832	4952 - sewage pumping stations 4953 - waste facility/landfill	SW systems, erosion controls - swales, enclosed control areas for waste, employee training, Good Housekeeping measures.	This outfall encompasses drainage from the 21st Street Waste Debris Collection & Recycling Facility along with housing and a sanitary pump station. This site has had previous cleanup efforts due to being a coal storage site and also PCB storage (was remediated and capped with concrete) The facility receives wood, metal, tires and other recyclable materials. The facility collects, compacts, sorts and ships the items off site.
	2832	38.68608006	-77.13958402	UT to Gunston Cove						
	2823	38.68505957	-77.14053931	UT to Gunston Cove						
	2829	38.68576122	-77.13981804	UT to Gunston Cove						

008	5023	38° 44' 20"	-77° 9' 15"	UT to Dogue Creek	ADF-E Northeast - Specific GPS Coordinates are Classified. The one given is a general location.	008 (5023) ADF (NE)	5015, 5017, 5018, 5021, 5026, 5028, 5038	4911 - power generation 4955 - hazardous waste storage and management 4961 - steam and heat generation/ ac systems 7538 - vehicle repair shop 8731 - engineering, chemical and industrial labs	OWS, SW systems, WW systems, drainage trenches, enclosed control areas for waste, spill plan, preventative maintenance programs.	This outfall receives drainage from a wide range of facilities at this site. The drainage area for this includes the maintenance facility with equipment storage, mulch storage and a salt dome for snow removal. There is also a hazardous waste storage facility, power generation (back up generators), fuel storage (underground), steam heat and cooling towers for air conditioning (discharge to sanitary), warehouse facilities and general national security facilities.		
	5015	38.738229	-77.1525	UT to Dogue Creek								
	5017	38.737776	-77.153061	UT to Dogue Creek								
	5018	38.737642	-77.15316	UT to Dogue Creek								
	5021	38.73827	-77.153555	UT to Dogue Creek								
	5023	38.738101	-77.15411	UT to Dogue Creek								
	5026	38.737976	-77.154262	UT to Dogue Creek								
	5028	38.737664	-77.154291	UT to Dogue Creek								
	5038	38.738135	-77.155004	UT to Dogue Creek								
009	5724	38° 43' 55"	-77° 10' 4"	UT to Accotink Creek	Golf Course Maintenance at bridge	009 (5724) Golf Course Swank/Snyder	4040, 4042, 4044, 4050, 4052, 4054, 4300, 5318, 5320, 5321, 5594, 5596, 5597, 5726, 5729, 5767, 5768, 5779, 5782, 5784, 5788, 5844	4953 - waste refuse system 7997 - golf course	SW systems, drainage trenches, enclosed areas for waste, spill plan, preventative maintenance, covered handling areas for repairs and loading/unloading.	This outfall receives drainage from the golf course maintenance facility, a small RV storage lot and some minimal flow from the golf course range. The maintenance facility maintains all of the golf carts and the equipment used to upkeep the golf course (for example mowers). There is storage for fuels, mulch and some salts for snow removal. Also adjacent to the maintenance buildings is a sanitary pump station.		
	4040	38.72840524	-77.16078973	UT to Accotink Creek								
	4042	38.7301268	-77.16083625	UT to Accotink Creek								

	4044	38.73022084	-77.16094019	UT to Accotink Creek								
	4050	38.73162112	-77.16079158	UT to Accotink Creek								
	4052	38.73230224	-77.15845395	UT to Accotink Creek								
	4054	38.7314384	-77.15716037	UT to Accotink Creek								
	4300	38 7340414	-77.15857012	UT to Accotink Creek								
	5318	38.73811	-77.161943	UT to Accotink Creek								
	5320	38.738243	-77.16176	UT to Accotink Creek								
	5321	38 738206	-77.161999	UT to Accotink Creek								
	5594	38.73774595	-77.16258413	UT to Accotink Creek								
	5596	38.73779875	-77 16209035	UT to Accotink Creek								
	5597	38.7377845	-77.16209195	UT to Accotink Creek								
	5726	38.7319025	-77.16708161	UT to Accotink Creek								
	5729	38.73180485	-77.16729124	UT to Accotink Creek								
	5767	38.73327177	-77 16656956	UT to Accotink Creek								
	5768	38.73338786	-77.16654542	UT to Accotink Creek								
	5784	38.73299399	-77.16081362	UT to Accotink Creek								
	5788	38.72757224	-77.16302929	UT to Accotink Creek								

	5844	38.73792733	-77.16313826	UT to Accotink Creek								
010	3244	38° 42' 39"	-77° 9' 0"	UT to Accotink Creek	249th Prime Power Meade Rd	010 (3244) 249th Prime Power Motor Pool	3243, 3258, 3260	7538 - vehicle repair shop 7542 - car/equipment washing	SW systems, drainage trenches, enclosed areas for waste, spill plan, preventative maintenance.	The 249th Prime Power group only has a motor pool on their site. The perform some basic maintenance. Any vehicle washing is completed either at Fort AP Hill or at the approved tactical washrack which discharges into the sanitary after going through an oil/water separator (see Outfall 011). There is small fuel storage with above ground storage tanks with secondary containment. Each tactical vehicle is stored with a drip pan when not in use. The 249th Prime Power will be moving from this site on Meade Road to a new location at the corner of Phoick Road and Theote Road. This new location would discharge into a UT to Accotink Bay (discharge is further downstream into Accotink than the previous location). This move is currently schedule for September-October 2015. New GPS coordinates will be obtained once the facility is built.		
	3243	38.71065874	-77.15004405	UT to Accotink Creek								
	3258	38.71100164	-77.15204263	UT to Accotink Creek								
	3260	38.71159131	-77.15197482	UT to Accotink Creek								
011	7242	38° 42' 36"	-77° 9' 13"	UT to Accotink Creek	1985 Washrack/ 12th Aviation MP	011 (7242) 1985 Washrack/ 12th Aviation Motor Pool	3209, 3211, 3220, 3222, 3215	7538 - vehicle repair shop 7542 - car/equipment washing	SW systems, OWS, drainage trenches	This outfall receives flow from part of the Tactical Washrack and from the 12th Aviation Motor Pool. The Tactical Washrack has trench drains through out the wash pad to capture any stormwater before it flows onto the wash pad and diverts it either toward the outfall or to an area just upstream. The washrack pad drains to a concrete settling basin which then discharges to an oil water separator to sanitary. Any solids from the settling basin are collected and disposed of into solid waste disposal (landfill). The 12th aviation motor pool has small fuel storage with above ground storage tanks with secondary containment. Each tactical vehicle is stored with a drip pan when not in use. Any vehicle maintenance is completed inside the facility building. All interior floor drains have either been capped or drains to sanitary.		
	3209	38.71138377	-77.15220868	UT to Accotink Creek								

	3211	38.71062026	-77.15323445	UT to Accotink Creek								
	3220	38.71081623	-77.15347242	UT to Accotink Creek								
	3222	38.7107594	-77.15303463	UT to Accotink Creek								
	3215	38.71095663	-77.15302994	UT to Accotink Creek								
012	5511	38° 42' 57"	-77° 10' 4"	UT to Accotink Creek	Mosby Reserve Center	012 (5511) Mosby Center	5737, 5740, 5510, 5512, 5521, 5514	5812 - dining facility 7538 - vehicle repair shop	SW systems, WW systems, covered repair areas, unloading and loading areas, spill pland and BMPs in place.	This outfall receives flow from the Mosby Reserve Center Motor Pool. Any vehicle washing is completed either at Fort AP Hill or at the approved tatical washrack which discharges into the sanitary after going through an oil/water separator (see Outfall 011). The Mosby Reserve Center motor pool has small fuel storage with above ground storage tanks with secondary containment. Each tatical vehicle is stored with a drip pan when not in use. Any vehicle maintenance is completed inside the facility building or at For AP Hill. All interior floor drains have either been capped or drains to sanitary. The main reserve center building does have a cafeteria style dining facility that is only in use as needed for a reserve weekend and/or a ceremony. There can be used cooking oil storage until it is picked up by a contractor for disposal.		
	5737	38.71644041	-77.1691449	UT to Accotink Creek								
	5740	38 71724457	-77.16916275	UT to Accotink Creek								
	5510	38.71626615	-77.16885002	UT to Accotink Creek								
	5512	38.715511	-77.167065	UT to Accotink Creek								
	5521	38.71771378	-77.16775635	UT to Accotink Creek								
	5514	38.71611552	-77.16587738	UT to Accotink Creek								

013	3761	38° 43' 13"	-77° 9' 7"	UT to Accotink Creek	AAFES Arby's (Formerly Church's Chicken)	013 (3761) Church's Chicken/ AAFES Station	3762, 3763, 3771	5541 - fuelling station 5812 - dining facilities	SW systems, WW systems, covered repair areas, unloading and loading areas, OWS.	This outfall receives flow from the area behind the Arby's food facility (formerly Church's Chicken) and the Class 6 store (convenience store). There is small storage of materials behind these facilities for used cooking oil and for materials used at the Class 6 store (windshield washer fluid, etc.) which are housed in closed storage sheds. At the top end of this drainage is also the car wash on post. This facility is covered and all washwater goes through a grit and oil water separator to the sanitary.		
	3762	38.72041695	-77.15174055	UT to Accotink Creek								
	3763	38.72049591	-77.15191036	UT to Accotink Creek								
	3771	38.72088818	-77.15078023	UT to Accotink Creek								
014	3755	38° 43' 16"	-77° 9' 11"	UT to Accotink Creek	AAFES Class 6 Fuel	014 (3755) AAFES Station	3745, 3752, 3753, 3756, 3757, 3758, 3759, 3773	5541 - fueling station 5812 - dining facilities	SW systems, WW systems, covered repair areas, unloading and loading areas, OWS	This outfall receives flow from the AAFES Class 6 store and the fuel islands. The Class 6 does have a dining facility inside (Dunkin Donuts). There are set procedures posted for spills. Most of the area is pavement and sidewalks. There are no other storage of chemicals at this facility		
	3745	38.72161615	-77.15294327	UT to Accotink Creek								
	3752	38.72090385	-77.15318207	UT to Accotink Creek								
	3753	38.72108784	-77.15319506	UT to Accotink Creek								
	3756	38.72102497	-77.15290798	UT to Accotink Creek								
	3757	38.72112614	-77.15270639	UT to Accotink Creek								
	3758	38.72113151	-77.15237824	UT to Accotink Creek								
	3759	38.72087125	-77.15205562	UT to Accotink Creek								
	3773	38.72153082	-77.1531824	UT to Accotink Creek								

015	2179	38° 41' 36"	-77° 8' 49"	UT to Accotink Bay	Base Ops/ 16th Street Operations	015 (2179) 16th Street Storage Area	1611, 1636, 1696, 2176, 2941, 5818, 5889, 5892	4212 - debris removal/garbage collection 4959 - snow plowing/ street sweeping 4911 - power generation 4952 - sewage pumping stations 4953 - waste facility / landfill 5541 - fueling station 5812 - dining facilities 7538 - vehicle repair shop 7542 - car washes	SW systems (storm drains and drainage channels), spill plan and BMPs in place, WW systems.	This outfall receives flow from a large industrial area. This area includes the South Post Fire Station, the government motor pool, the government fuel station, several industrial warehouses, an RV storage lot, and the base ops contractor storage and maintenance yard. The government motor pool does complete minor maintenance (inside only) and there is an oil water separator on site that has a grit collector to sanitary. The South Post Fire Station is a historic building and they have washed trucks outside. They are building a replacement fire station across the street which will have floor drains that discharge to sanitary. The government fuel station is older with USTs. The RV storage lot is just paid storage and no maintenance allowed. All industrial warehouses keep their processes inside. The Base Ops contractor yard has a maintenance shop, ASTs with secondary containment, a salt storage dome/brine generation equipment, facility storage lot, street sweeping equipment, sanitary pump station, steam/heat generation, and generator for back-up power. The Base Ops Contractor yard is also on top of a SWMU that is being actively remediated.		
	1611	38.69387129	-77.14395761	UT to Accotink Creek								
	1636	38.69239826	-77.14316301	UT to Accotink Creek								
	1696	38.69074744	-77.14371479	UT to Accotink Creek								
	2176	38.69268944	-77.14818897	UT to Accotink Creek								
	2941	38.68914063	-77.14482883	UT to Accotink Creek								
	5818	38.69415829	-77.14589258	UT to Accotink Creek								
	5889	38.69310175	-77.14679078	UT to Accotink Creek								
	5892	38.69294677	-77.14674653	UT to Accotink Creek								

016	4471	38° 42' 25"	-77° 7' 49"	Dogue Creek	DFMWR Dogue Creek Marina	016 (4471) Marina	4467, 4469, 4474	4493 - marina	SW systems, WW systems, covered repair areas, unloading and loading areas.	This outfall receives flow from the DFMWR Marina. This facility has floating docks with sanitary dump station hook ups, dock slips, boat storage, used oil tank collection point (secondary storage/double wall tank), and other fluids disposal with secondary containment. The marina has a policy against outside boat maintenance and washing. However, they are experiencing a challenge with enforcement of this policy with their patrons.		
	4467	38.7077788	-77.13088914	UT to Dogue Creek								
	4469	38.70796513	-77.13030802	UT to Dogue Creek								
	4474	38.70728251	-77.13052318	UT to Dogue Creek								
017	7243	38° 41' 56"	-77° 8' 54"	UT to Accotink Bay	Recycling Center/ Compost Yard	017 (7243) Building 1809 Recycling Center and Compost Yard	N/A (no other structure)	4953 - landfill	N/A	This outfall receives flow from the Recycling Center and Compost Yard. This facility has storage bins for collection of each of the type of materials (cardboard, paper, metal, etc.). The inside of the facility collects materials and sorts them for recycling and shipping off post as such.		
018	1828	38° 40' 57"	-77° 8' 10"	UT to Gunston Cove	300 Area Totten Rd Top	018 (1828) 300 Area Totten Rd	N/A (Outfall Pipe has been filled in)	N/A (Outfall Pipe has been filled in)	SW systems (storm drains), WW systems, spill plan and BMPs in place, covered storage areas.	This area receives flow from facilities that include the steam generation plants and back up power generator with their own fuel tanks (double walled tanks). There is also a metal fabrication shop and other buildings that are research and development. This outfall is in a drainage		
019	2196	38° 40' 54"	-77° 8' 8"	UT to Gunston Cove	300 Area Totten Rd General Lab 322	019 (2196) Building 322 General Lab 300 Area	1826, 1827, 1829, 1830, 1834, 1836, 1882, 1994, 2034, 2036, 2037, 2538, 2539, 2540	4911 - power generation Major Group 34 - metal shop 8731 - engineering, chemical and industrial labs 8734 - testing laboratories	SW systems (storm drains), WW systems, spill plan and BMPs in place, covered storage areas.	This area receives flow from facilities that include the back up power generator with their own fuel tanks (double walled tanks). There is also a metal fabrication shop and other buildings that are research and development. There is also a groundwater remediation system in place in the slope upgradient from this outfall. This outfall is in a drainage swale along Totten Road.		
	1826	38.68125494	-77.13620989	UT to Gunston Cove								
	1827	38.68140103	-77.1362202	UT to Gunston Cove								
	1829	38.68246704	-77.13640183	UT to Gunston Cove								
	1830	38.68270584	-77.13656712	UT to Gunston Cove								

	1834	38 68279813	-77.13693291	UT to Gunston Cove								
	1836	38.68256033	-77.13618306	UT to Gunston Cove								
	1882	38 68332644	-77.13765593	UT to Gunston Cove								
	1994	38 68206765	-77.13867526	UT to Gunston Cove								
	2034	38.6831562	-77 13960439	UT to Gunston Cove								
	2036	38.68327657	-77.13961973	UT to Gunston Cove								
	2037	38.68327757	-77.1395313	UT to Gunston Cove								
	2538	38.68328059	-77 13945653	UT to Gunston Cove								
	2539	38.68339358	-77.13953138	UT to Gunston Cove								
	2540	38.68328386	-77.13831693	UT to Gunston Cove								
020	2193	38° 40' 44"	-77° 8' 11"	UT to Gunston Cove	300 Area Totten Rd Lab & Storage 324	020 (2193) Building 324 Lab and Storage	1814, 1821, 1824, 1927, 1931, 1933, 1938, 1941, 2193	8731 - engineering, chemical and industrial labs 8734 - testing laboratories	SW systems (storm drains), WW systems, spill plan and BMPs in place, covered storage areas.	This area receives flow from facilities that include the back up power generator with their own fuel tanks (double walled tanks). There is also a metal fabrication shop and other buildings that are research and development. There is also a groundwater remediation system in place in the slope upgradient from this outfall. This outfall is in a drainage swale along Totten Road.		
	1814	38.67880214	-77.13625582	UT to Gunston Cove								
	1821	38.6795224	-77.13731571	UT to Gunston Cove								
	1824	38.67980872	-77.13720792	UT to Gunston Cove								
	1927	38.67894698	-77.13812758	UT to Gunston Cove								

	1931	38.67925325	-77.13833118	UT to Gunston Cove								
	1933	38.6796286	-77.13843134	UT to Gunston Cove								
	1938	38.67916147	-77.13931412	UT to Gunston Cove								
	1941	38.67968299	-77.13838843	UT to Gunston Cove								
	2193	38.67862788	-77.1361782	UT to Gunston Cove								
021	2189	38° 40' 39"	-77° 8' 12"	UT to Gunston Cove	300 Area Totten Rd 305	021 (2189) Building 305 Night Vision	1728, 1798, 1801, 1803, 1806, 1817, 2182, 2184, 2185	8731 - engineering, chemical and industrial labs 8734 - testing laboratories	SW systems (storm drains), WW systems, spill plan and BMPs in place, covered storage areas.	This area receives flow from facilities that include the back up power generator with their own fuel tanks (double walled tanks). There is also other buildings that are research and development. This outfall is in a drainage swale along Totten Road.		
	1728	38.67525584	-77.13826681	UT to Gunston Cove								
	1798	38.67587702	-77.1374577	UT to Gunston Cove								
	1801	38.67656367	-77.13740992	UT to Gunston Cove								
	1803	38.67588876	-77.13736055	UT to Gunston Cove								
	1806	38.67660692	-77.13730917	UT to Gunston Cove								
	1817	38.67878806	-77.13730716	UT to Gunston Cove								
	2182	38.67451429	-77.14050871	UT to Gunston Cove								
	2184	38.67663131	-77.1367299	UT to Gunston Cove								
	2185	38.67675494	-77.1367294	UT to Gunston Cove								

022	2128	38° 40' 28"	-77° 8' 26"	Gunston Cove	300 Area Marina	022 (2128) Marina 300 Area	1810, 1886, 1889, 1892	4493 - marina 8731 - engineering, chemical and industrial labs	SW systems (storm drains), WW systems, spill plan and BMPs in place, covered storage areas.	This area receives flow from facilities that include the back up power generator with their own fuel tanks (double walled tanks). There is also other buildings that are research and development. The closest and largest facility to the outfall is a military marina. This facility has fuel storage (small tanker truck that is parked on secondary containment), small maintenance activities, and some basic storage of materials (stored under cover and/or in water tight flammable lockers). This outfall is in a drainage swale along the side of the marina facility.		
	1810	38.67500388	-77.13884675	UT to Gunston Cove								
	1886	38.67455612	-77.14005735	UT to Gunston Cove								
	1889	38.67508619	-77.14049145	UT to Gunston Cove								
	1892	38.67553747	-77.14008727	UT to Gunston Cove								
023	2775	38° 42' 8"	-77° 9' 10"	UT to Accotink Bay	Bldg 1497 Sharon Lane Storage	023 (2775) Building 1497 Warehouses	2753, 2755, 2766, 2769, 2781, 2796, 2949, 2950	4955 - hazardous waste storage and management	SW systems (storm drains), spill plan and BMPs in place, covered storage areas.	This area contains one of the hazardous waste storage buildings and the pesticide contractor's storage building for the installation. The facility has storage inside with sealed floors.		
	2753	38.70139732	-77.15242552	UT to Accotink Bay								
	2755	38.70135684	-77.15231588	UT to Accotink Bay								
	2766	38.70142766	-77.15228822	UT to Accotink Bay								
	2769	38.70252226	-77.15263733	UT to Accotink Bay								
	2781	38.70158776	-77.15269558	UT to Accotink Bay								
	2796	38.70171868	-77.15169042	UT to Accotink Bay								
	2949	38.70339146	-77.15276423	UT to Accotink Bay								
	2950	38.70301595	-77.1523914	UT to Accotink Bay								

024	5234	38° 44' 10"	-77° 9' 20"	UT to Dogue Creek	ADF-E Southwest - Specific GPS Coordinates are Classified. The one given is a general location.	024 (5234) ADF (SW)	5203, 5220, 5225, 5232, 5242, 5274, 5280	4961 - systems heat generation/ac systems	SW systems (storm drains), WW systems, spill plan and BMPs in place, covered storage areas.	This outfall receives drainage from a wide range of facilities at this site. The drainage area for this includes the maintenance facility with equipment storage. There is also a hazardous waste storage facility, power generation (back up generators), fuel storage (underground), steam heat and cooling towers for air conditioning (discharge to sanitary), warehouse facilities and general national security facilities.		
	5203	38.734623	-77.15437	UT to Dogue Creek								
	5220	38.734611	-77.155404	UT to Dogue Creek								
	5225	38.734798	-77.155922	UT to Dogue Creek								
	5232	38.735599	-77.155715	UT to Dogue Creek								
	5242	38.735525	-77.155997	UT to Dogue Creek								
	5274	38.735683	-77.156067	UT to Dogue Creek								
	5280	38.736176	-77.156511	UT to Dogue Creek								
025	7241	38° 42' 52"	-77° 9' 29"	UT to Accotink Creek	Meade Rd. Contractor Storage Lot	025 (7241) Mead Road Contractor Lot	3346, 3348, 3345	4953 - landfill	BMPs in place that include barriers silt fences and the use of an old concrete settling basin.	This outfall receives drainage from the Meade Road contractor yard on post (north east of US Route 1). There are two closed SWMU in the area that are a result of the area being a former coal storage yard. The SWMU have a 'No Further Action' letter from US EPA Region 3 dated 7 Dec 2012. This outfall encompasses an area where contractors are assigned lots for a laydown yard and general storage. The area has one roadway into it. There is very old asphalt under the area, but it is in disrepair in several areas. The drainage area includes equipment storage, recycled crushed concrete, road millings and sea container storage.		
	3346	38.71606037	-77.15633735	UT to Accotink Creek								
	3348	38.71602098	-77.15590216	UT to Accotink Creek								
	3345	38.71558143	-77.15578666									

026	0376	38° 42' 8"	-77° 7' 50"	UT to Potomac River	A08/A09 Markham School	026 (7246) A08 and A09 Closed Landfills at Markham School	0584, 0377, 0350	4953 - landfill	N/A	This outfall receives drainage from two closed landfills. The drainage swale into an intermittent stream runs between the two closed landfills. The drainage area for A08 is fully vegetated. The drainage area for A09 is fully vegetated plus once section contains Markham School. This outfall encompasses two closed landfills (not active). The area has two cleared, non-paved dirt/gravel roads that are present only for the personnel that are monitoring the landfills only.		
	0584	38.6995222	-77.13194417	UT to Dogue Creek at confluence with Potomac River								
	0377	38.70255168	-77.13272125	UT to Dogue Creek at confluence with Potomac River								
	0350	38.70335785	-77.13263492	Dogue Creek at confluence with Potomac River								
027	7245	38° 41' 17"	-77° 9' 1"	UT to Accotink Bay	Theote Closed Landfill	027 (7245) A02 Theote Landfill	N/A (no other structure)	4953 - landfill	N/A	This outfall receives drainage from a closed landfill (not active). The drainage swale receives flow from the majority of the landfill and directs it into the pipe that drains the landfill and off site into an intermittent stream. The entire landfill is fully vegetated. The area has a cleared, non-paved vegetated road that are present only for the personnel that are monitoring the landfills only.		
028	4334	38° 43' 42"	-77° 8' 47"	Dogue Creek	A06 Closed Landfill Bldg 2310 at Kingman & Woodlawn	028 (4334) A06 Landfill, Building 2310	4270, 4338, 4264, 5644, 4269, 5643	4953 - landfill 4911 - power generation	N/A	This outfall receives drainage from a closed landfill (not active). The drainage swale receives flow from the majority of the landfill and directs it into the pipe that drains the landfill and off site into an intermittent stream. The entire landfill is fully vegetated with one facility with parking and satellites. The area has a cleared section with pavement, generators and satellites with the rest of the landfill fully vegetated and draining to a un-named tributary.		

	4270	38.72784843	-77.14635735	UT to Dogue Creek								
	4338	38.72749278	-77.14761506	UT to Dogue Creek								
	4264	38.72544793	-77.14542126	UT to Dogue Creek								
	5644	38.7266882	-77.14465683	UT to Dogue Creek								
	4269	38.72680245	-77.14422776	UT to Dogue Creek								
	5643	38.72693187	-77.14510275	UT to Dogue Creek								
029	6004	38° 43' 45"	-77° 8' 27"	Dogue Creek	A07/A25 Closed Landfill, Old Mulligan Rd	029 (6004) A07 and A25 Mulligan Road Landfill	6007	4953 - landfill	Retention Pond	This is a closed landfill that is along, Jeff Todd Way (old Mulligan Road). This landfill is still monitored by the remediation personnel. There was a previous stormwater pond adjacent to this landfill that was enhanced by Federal Highways for the road project. The outfall for this landfill is the stormwater management pond. The outlet for this pond has a riser structure which discharges into a swale.		
	6007	38.72815185	-77.14063662	Dogue Creek								
030	7244	38° 41' 48"	-77° 9' 13"	UT to Accotink Bay	A26 Pohick Rd/Tulley Gate Closed Landfill	030 (7244) A26 Pohick Road Landfill (s)	N/A (no other structure)	4953 - landfill	N/A	This is a closed landfill that is along, Tulley Road adjacent to the Visitor Processing Center at Tulley Gate. This landfill is still monitored by the remediation personnel. There are no discharge structures, but drainage swales. The outfall for this location is where the drainage swale meets the stream (UT).		
031	6438	38° 45' 15"	-77° 12' 0"	Accotink Creek	NGA Reflecting Pool - Specific GPS Coordinates are Classified. The one given is a general location.	031 (7240) Belvoir North NGA Area Pond	N/A (no other structure)	9511 - Air and Water Resource and Solid Waste Management	SW systems (storm drains), WW systems, spill plan and BMPs in place.	This outfall is a discharge from a large reflecting pool two tier pond. The pond does not discharge very often as it requires manually opening a value in the riser structure. This drainage area receives stormwater flow from the building, surrounding roadways and sidewalks, the parking garage and various other paved trails and walking paths. The two tiered reflecting pond is treated with a black dye to prevent the growth of algae and it is also treated with a microbe additive to treat the waste product from waterfowl.		

032	6207	38° 45' 0"	-77° 11' 45"	Accotink Creek	NGA Pond 8 - Specific GPS Coordinates are Classified. The one given is a general location.	032 9 (N/A) Belvoir North NGA Area Pond Riser	6222, 6209	4911 - power generation 5541 - fueling station	SW systems (storm drains), WW systems, spill plan and BMPs in place.	management basin known as Pond 8. The pond does not discharge very often through the riser structure. There is a valve to close it off, but it is typically left in the open position. This pond receives flow from the building, surrounding roadways and sidewalks and various paved trails and walking paths. The primary concern for this location is that within the drainage area is a large fuel storage area and the facility maintenance. The fuel storage area has a large concrete containment area that is lined. It has special gel filters that react with petroleum to swell and close the stormwater valve.		
	6222	38.74944717	-77.19592382	Accotink Creek								
	6209	38.74966753	-77.19542669	Accotink Creek								



DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT BELVOIR
9820 FLAGLER ROAD, SUITE 213
FORT BELVOIR, VIRGINIA 22060-5928

REPLY TO
ATTENTION OF

IMBV-DPW

18 July 2016

MEMORANDUM FOR RECORD

SUBJECT: Permanent Closure of Industrial Stormwater Outfall 018

1. A stream restoration is currently being designed and implemented at the un-named perennial tributary to Gunston Cove, near the confluence of the Potomac River. On March 09, 2016 the U.S. Army Corps of Engineers provided advance drawings to this office for completing improvements to a section at the upper reaches of the stream system. Specifically the eastern section, that was adversely impacted by improperly placed drainage infrastructure. The work involved the permanent closure of Industrial Stormwater Outfall (ISW Outfall) 018.
 - a. The work included construction of a retaining wall, construction of a roadside stormwater channel, and the separation of the eastern drainage, comprised of stormwater conveyance (swale and culvert) from the westerly stream channel. ISW 018 was located at the outfall of the culvert on the western stream channel. The need for grouting of the stormwater culvert was identified by the U.S. Army Corps of Engineers, Baltimore District, Water Resources Branch staff. The separation of the flows will eliminate the overtopping of the stream channel over Totten Road which contributed to the associated erosion near ISW Outfall 019. Mr. Michael Hudson, expanded the area of repairs based on in the field observations to include areas further upstream of the stream restoration project area. The areas upstream included scour and displacement of existing riprap. The work in these areas included regarding of the stormwater conveyance and placement of class II riprap, instead of the previously existing class I riprap, continued throughout the stormwater conveyance to the downstream end of the improvements (enclosed drawings). The, on the drawings shown reinforced turf swale was not constructed as shown, but lined with class II riprap.
 - b. On July 13, 2016, the stormwater culvert that includes ISW Outfall 018, was grouted shut. On July 14, 2016, the swale was constructed and class II riprap was placed in the newly constructed stormwater conveyance. This work eliminated the crossing of stormwater flows into the stream located on the west side of Totten Road and, therefore, eliminated ISW Outfall 18. The flows that were previously sampled at this outfall will now be sampled at ISW 019, where a junction box will be installed when the full stream restoration commences. In the meantime, the flows discharge at the location of the new junction box and the culvert outfall at ISW Outfall 019.

VEGA.SYBILLE. Digitally signed by
VEGA.SYBILLE.R.1131884890
DN: c=US, ou=U.S. Government, ou=DoD,
o=PM, ou=ISA,
cn=VEGA.SYBILLE.R.1131884890
Date: 2016.08.01 13:53:08 -0400
R.1131884890

SYBILLE R. VEGA
Industrial Stormwater & TMDL Program
Manager

“LEADERS IN EXCELLENCE”

Permanent Closure of Industrial Stormwater Outfall 018 – Photo Log

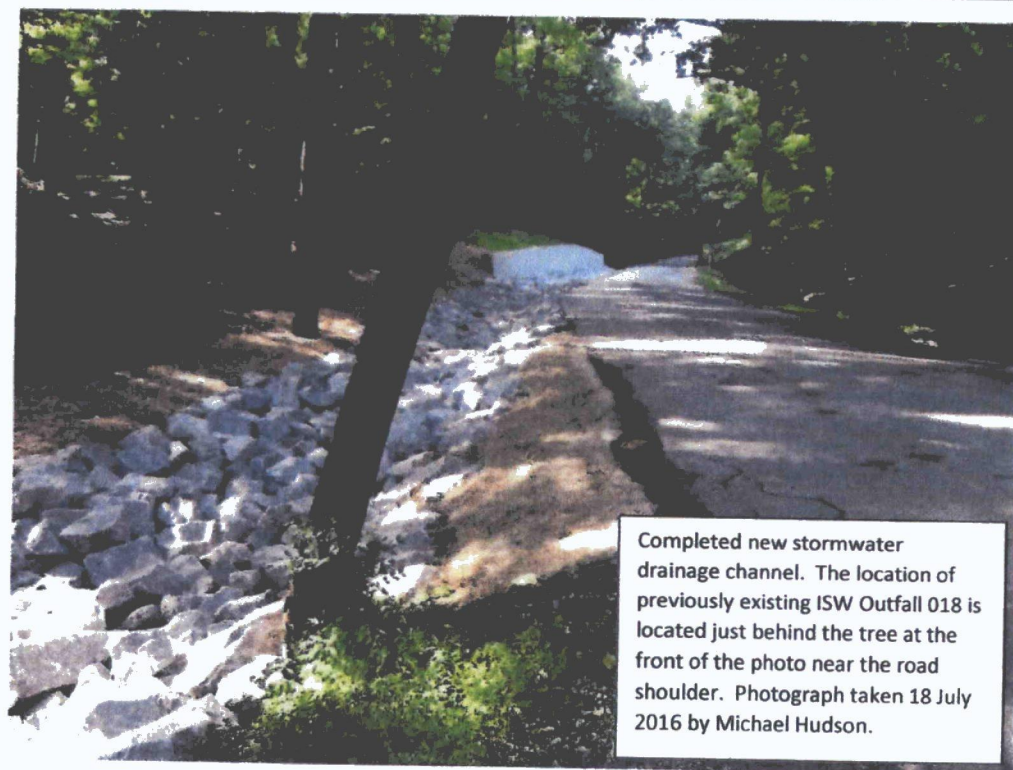
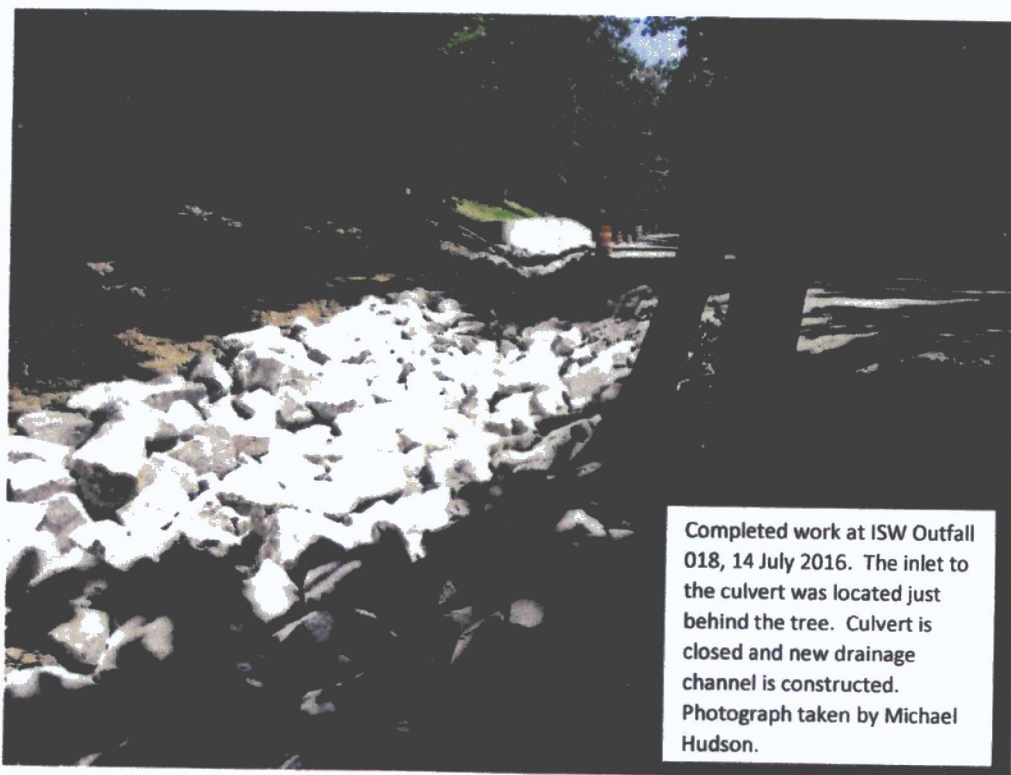


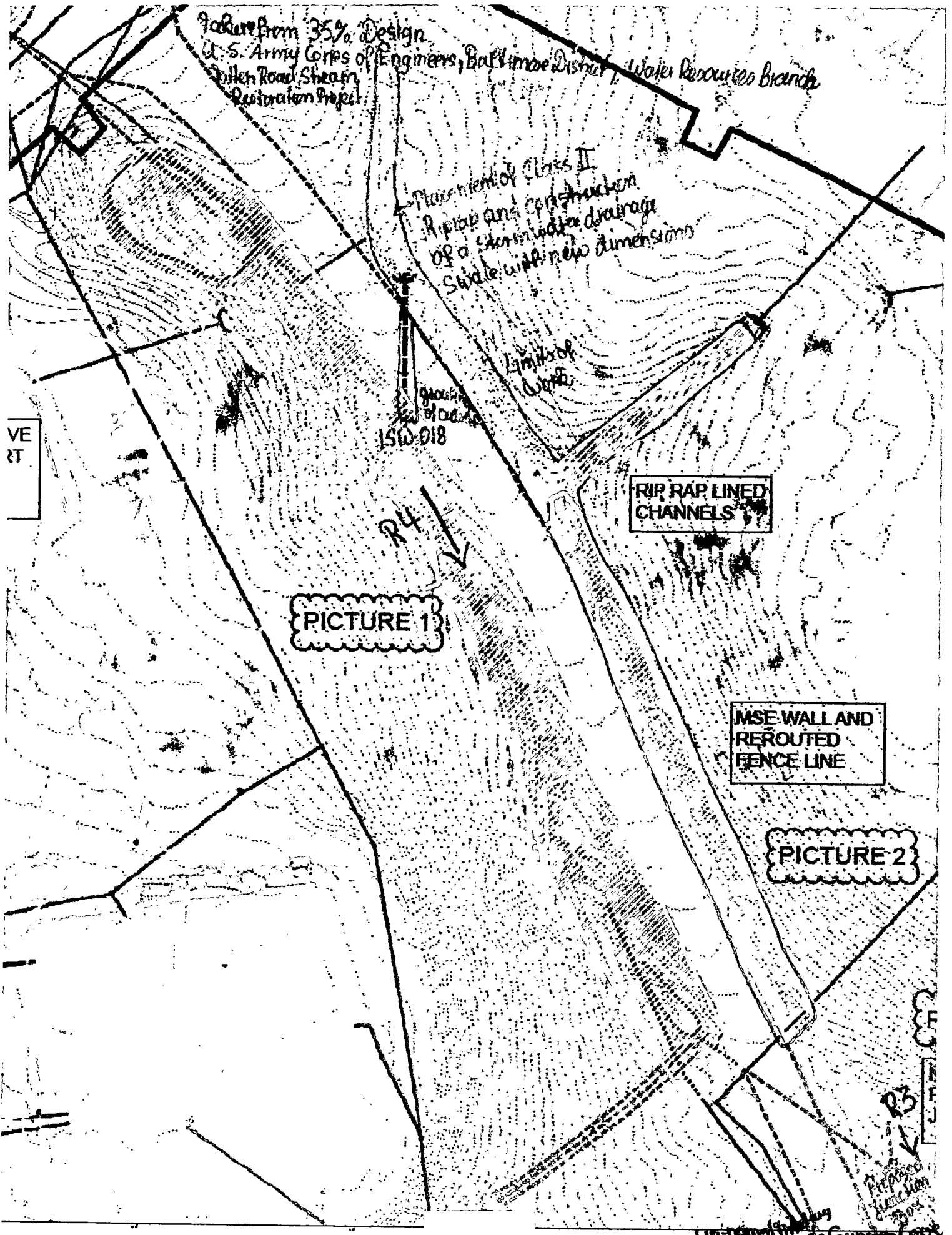


Culvert inlet for ISW
Outfall 018, just prior to
begin of grouting work on
13 July 2016 photograph
taken by Michael Hudson.

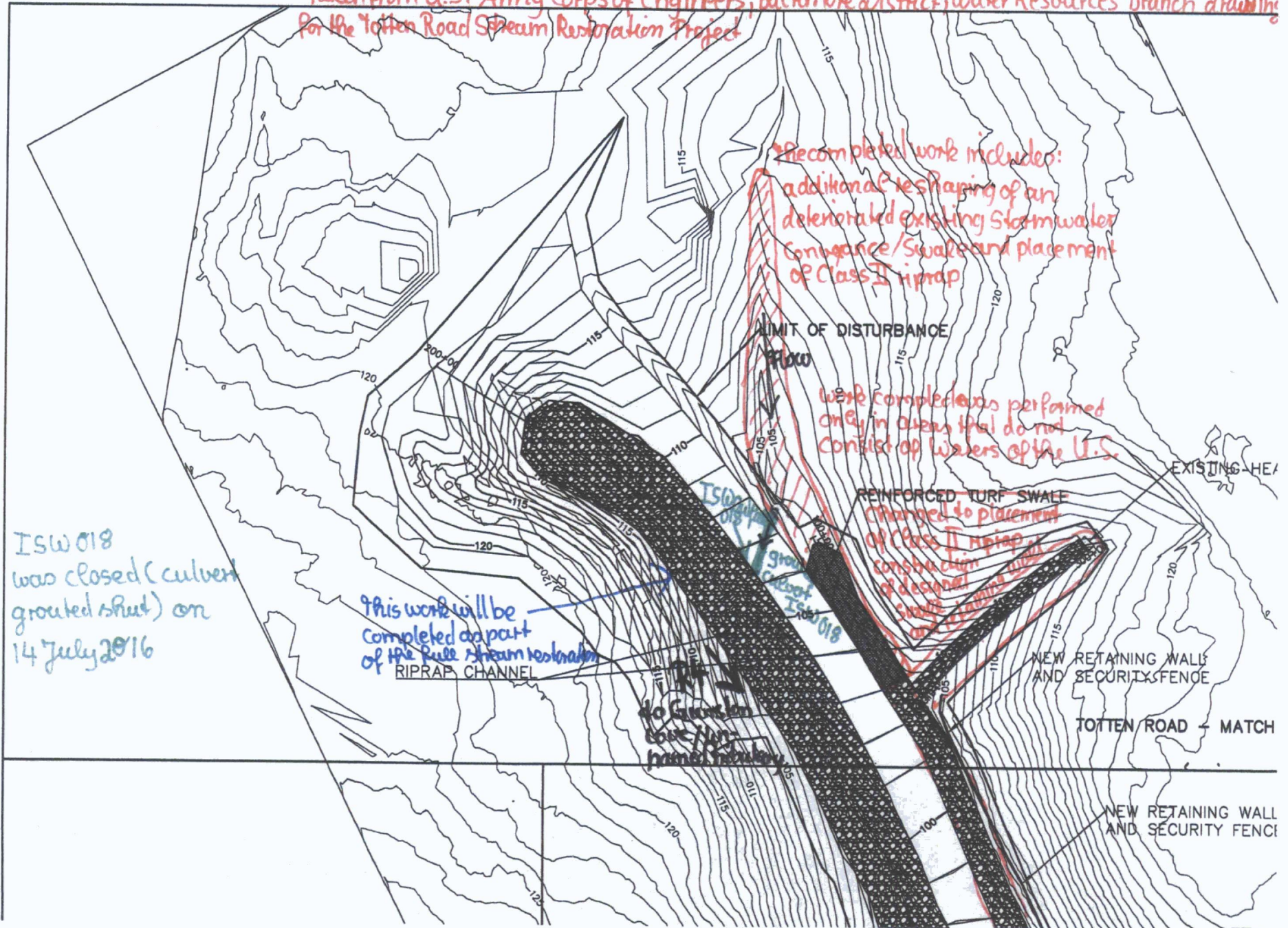


ISW Outfall 018, post
grouting the outfall shut on
13 July 2016, photograph
taken by Michael Hudson.





Taken from U.S. Army Corps of Engineers, Baltimore District, Water Resources Branch drawing for the Totten Road Stream Restoration Project



The completed work includes:
additional reshaping of an
deteriorated existing stormwater
confluence/swale and placement
of Class II riprap

Work completed is performed
only in areas that do not
consist of waters of the U.S.

REINFORCED TURF SWALE
changed to placement
of Class II riprap
construction
of design
swale, stream
and riprap

This work will be
completed as part
of the Ruck Stream restoration
RIPRAP CHANNEL

do not
lose
stream
channel
integrity

ISW 018
was closed (culvert
grouted shut) on
14 July 2016

65% DESIGN TOTTEN ROAD - SITE 1

